PUBLIC HEALTH SERVICES IN AN INDIANA DEFENSE COMMUNITY

By

JOHN E. STONER

Indiana University
Department of Government

And

OLIVER P. FIELD

Indiana University
Department of Government

BUREAU OF GOVERNMENT RESEARCH

Indiana University

Bloomington, Indiana

Preface

This is the first of two studies of the Charlestown, Indiana, area being prepared by the authors. The second study also deals with the effect of the building of a huge defense industry upon the general administrative services of the town.

Mr. Stoner has been responsible for much of the research that has gone into this study of local health administration, and he spent an aggregate of several weeks in field work in the community as well as in Indianapolis, interviewing officials and citizens, and examining numerous public records. The project was planned jointly by the authors, and the closest cooperation was maintained during the execution of the study. The authors wish to acknowledge their indebtness to Mr. Frank Yoder, of the Indiana Bar, who served as a research assistant in legal phases of this study. They also wish to thank Mrs. Paul G. Willis, who not only typed the manuscript but assisted in the task of reading proof and checking references.

The authors are grateful to the members of the staff of the Indiana State Board of Health and to the staff of the district health department, number three, as well as to the county health officer in the area.

The final organization, draft and interpretation of the materials in this study have been the responsibilities of both authors.

John E. Stoner
Oliver P. Field

Indiana University
Bloomington, Indiana
June 20, 1942

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

I

THE PROBLEM AND ITS BACKGROUND*

A Defense Community This is a study of the administration of the public health services in the Charlestown, Indiana, community, during the period in which the town of Charlestown became free to elect the status of a city, and the community enlarged from a settlement of slightly less than one thousand inhabitants to one varying in size from four to six thousand persons. The location near Charlestown of a huge powder plant and the enormous bagloading establishment, two national defense industries, bringing thousands of migratory workers into the community, imposed an extremely heavy burden upon the administrative services of the town, township, county, state, and nation; but the impact of this development upon the combined health services of these governmental units probably was more severe than upon any other branch of the administrative system.

Dangers to Health The dangers to health flowing from a congestion of workers drawn from north and south and east and west, eating and sleeping under the most elementary conditions, crowded into inadequate quarters and serviced by water, milk, and sanitary facilities designed for a small community can hardly be exaggerated. That the administration of public health services in the Charlestown area not only kept pace with the problem as it unfolded, but actually improved the general conditions of health in the community is a tribute to the American public health system. The score of the system is not a perfect score, but it is a very high score, and this study attempts to outline the problems faced and the methods used in coping with them. In order to do this it will be necessary to present a general outline of health administration in the state and its localities at the time that Charlestown became the center of a national defense industry, and later to indicate the supplemental and auxiliary organizations and procedures that were established, as well as the inter-governmental relationships that contributed to the solution of the health problems of the Charlestown area.

Early Health Work Public health has been recognized as a concern of government in America since Baltimore, in 1793, and

* Assistance was received from the Social Science Research Council in the form of a grant-in-aid to Mr. Field, and from the Graduate School of Indiana University to Mr. Stoner in the form of a grant-in-aid for a study of local regulation of business in Charlestown, a portion of the results of which appear in this study.

Philadelphia, in 1794, took steps to prevent the spread of a serious epidemic of yellow fever. Even as early as 1797, Massachusetts recognized the statewide implications of health activities by requiring that every town must organize a board of health, an action that was broadened in 1869 by the establishment in the same state of a state board of health.[1] While states and local governments carried on health work during the three quarters of a century that followed the inauguration of a statewide health policy in Massachusetts, it was not until the enactment of the Social Security Act in 1935, that adequate financial support was available to enable state and local officers to embark upon the more elaborate type of program that is now considered by the professional health administrators to be suited to the health requirements of the nation and its communities.

According to Winslow, public health is "the science and the art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive machinery which will insure to every individual a standard of living adequate for the maintenance of health; organizing these benefits in such fashion as to enable every citizen to realize his birthright of health and longevity."[2]

Scope of Health Program Smillie has outlined the functions of a health organization as including (1) sanitation, involving (a) safe and adequate water supply, (b) suitable disposal of human waste, (c) safe and adequate food supply, (d) disposal of garbage and refuse, (e) control of the intermediate sources of disease transmission, e.g., destruction of anopheles mosquitoes, house-flies and rats; (2) control of communicable disease; (3) public health education; (4) individual health protection and promotion; (5) research in disease prevention; and (6) the development of machinery to insure a standard of living to each individual adequate for the maintenance of proper health.[3]

Early Health Laws in Indiana Early statutes in Indiana defined certain offenses against health, and their enforcement was left to private initiative. As early as 1831, disinterring of corpses, maintaining nuisances, selling "any unwholesome provisions, for wholesome provisions, knowing the same to be unwholesome" were prohibited actions.[4] From time to time this list was added to until in 1881, several sections in a statute entitled, Public Offenses, were de-

voted to offenses against "Public Health."[5] Among the activities prohibited were offenses related to: nuisances; keeping animals; cleanliness; drainage; buildings; stagnant water; putting dead animals in streams; and selling unwholesome provisions, milk, and diseased animals. While this list had been growing by legislative addition, powers to prohibit offenses against health had been extended to cities and also city councils had been required to appoint boards of health. Later towns were likewise granted some health powers.[6]

State Board Created A second milestone in the development of health legislation was the act of 1881 creating a state board of health.[7] The act provided that the governor should appoint four members of the board, subject to the consent of the Senate, two for two years, and two for four years, and thereafter the term of office was to be four years. The board was directed to appoint a fifth member who was also to be its secretary and, as the executive officer of the board, the health officer of the state. By an act of 1891, appointment of the board was vested in a board composed of the governor, secretary of state, and auditor of state.[8] An act of 1933 empowered the governor to transfer duties and functions, and by proclamation dated April 15, 1933, the board of health was placed in the Department of Commerce and Industries.[9] The governor is now thought to have the power to make these appointments under the decision in the 1941 reorganization case.[10] The appointment of the secretary of the board as one of its members has not been changed since 1881.

Ex officio local boards of health were provided for towns, cities and counties. The board of trustees of the towns, the board of county commissioners and the mayor and council together in cities except where ordinances might provide for a separate board of health, were duly constituted the boards of health in the respective jurisdictions.[10a]

Powers of State Board The powers granted to the state board by the original act were hortatory, advisory, investigative. It had no substantial regulatory power except for some rule-making power which local boards were to exercise under "the direction" of the state board, and the authority to prescribe the forms on which the local boards were to report vital statistics.[11]

The following quotation from section two of the acts of 1881, illustrates the general tone of the legislation: "They shall especially study the vital statistics . . . and endeavor to make intelligent and profitable use of the collected records of deaths and of sickness among the people; they shall make sanitary investigations and in-

quiries respecting the causes of disease, and especially of epidemics; the causes of mortality, and the effects of localities, employments, conditions, ingesta, habits and circumstance on the health of the people." The board of health was to advise the legislature, officers and other boards, and to disseminate "information among the people".[12] The reporting of all deaths and births to the town, city or county board of health was made the duty of the attending physician or accoucheur if one were present; otherwise by the householder. All deaths coming under the jurisdiction of a coroner were to be reported by him.[13] The clerk of the circuit court was required to make a monthly report of all marriages,[14] and the reports were to be kept on forms prescribed by the state board. The Bureau of Vital and Sanitary Statistics for keeping statistics of births, marriages, deaths, and other specified events was established under the secretary of the board.[15] The state board was given directoral authority over the local boards. ". . . and such town, city and county Board shall have authority, and it shall be their duty in the locality concerned, under the direction of the State Board of Health, to promulgate and enforce such regulations for the preservation of public health and the prevention of epidemic and contagious diseases as may be deemed advisable by them. . . ."[16] The board seems not to have used this supervisory power.

The nature of this early legislation, granting powers to educate, advise, and investigate, rather than powers of direct, coercive action, has served as a background for the attitudes and policies of the board and its secretary down to the present time. The state of public opinion with respect to health administration over half a century ago was such that little if any direct, coercive action could have been undertaken by a central state agency. Later legislation has granted more specific and still broader powers, and the burden of administering the law was shifted from the private individual to the public health officials. The board and its executive officer have continued to approach the problems of health administration from the point of view of the assumptions implicit in the legislation of 1881. The two exceptions to this general tendency have been in the field of vital statistics and in the field of internal organization. This legislation was surprisingly far-sighted in its grant of power over details of organization, and the board has exercised this power in an efficient administrative manner. This aspect of the legislation foreshadows some of the developments in the field of organization of our own time.

Board of Health Organization The administrative divisions of the state board of health at the time Charlestown became a defense area are reported in the Indiana *Yearbook* of 1940.[17]

Bureau of Health and Physical Education
Bureau of Communicable Diseases
Bureau of Industrial Hygiene
Bureau of Maternal and Child-Health
Bureau of Weights and Measures
Bureau of Local Health Administration
Indiana Community Sanitation Program
Marihuana Eradication and Narcotic Enforcement
Bureau of Public Health Nursing
The Laboratory of Hygiene
Bureau of Vital Statistics
Bureau of Venereal Diseases
Bureau of Food and Drugs
Bureau of Sanitary Engineering
Bureau of Dairy Products

Each of the bureaus or divisions has listed an officer designated as chief, director or some other title indicating administrative responsibility for the division. These divisions of the board have been created in part by act of the legislature, and in part by the board itself after a function has been conferred on it by the legislature. The Laboratory of Hygiene was set up by the following authorization of the legislature:[18]

> A state laboratory of hygiene is hereby established as a department of the state board of health, the same to be under the general control of said board.

However, it seems that most of the internal divisions have been established by action of the board. For example, two of the bureaus which have carried on many activities in the Charlestown area were set up by the board. "The Secretary was instructed to establish a Division of Communicable Diseases and Epidemiology and to secure and appoint a properly qualified person for the position of epidemiologist to the State Board of Health."[19] A second example is to be found in the following quotation:[19a] "The Bureau of Local Health Administration was established in the Indiana State Board of Health, November 10, 1936. Such an administrative office was necessary in carrying out the provisions of Title VI of the Social Security Act."

Regardless of the legal status of the administrative framework of the board, the legislature, for the most part, appropriates money to the board, naming functions, such as "maternity and infancy" and "milk and dairy products, milk-tax fund, tourist camps, and standard weights and measures,"[20] but rarely does it name specific offices in the bureau. However, there are exceptions to this rule, as in 1939, when the bureaus of "Industrial Hygiene" and "Standards, Weights and Measures" were mentioned specifically in the act.[21]

The powers conferred on the state board in various acts since 1881 are numerous, and only representative ones will be mentioned. It may inspect all public institutions, and, after notice, all private property; it may impose quarantines, close schools, churches, and forbid public gatherings, condemn and abate conditions causative of disease, order and execute what is reasonable and necessary for the prevention and suppression of disease; it may regulate and prescribe the character and location of plumbing, drainage, water supply, disposal of sewage, lighting, heating, ventilation and all sanitary features of all public buildings and institutions;[22] it may, on complaint, investigate and hold hearings to determine if water in streams, ponds, etc., is being polluted and order the undesirable practices discontinued,[23] or order such changes in municipal water supplies as it "may recommend to make the water 'pure and healthful' to its 'satisfaction'."[24]

Relation to Local Boards The health officers of local boards may not be appointed without the approval of the state board and may be removed by it.[25] They are required to enforce the health laws of the state and "all the rules and regulations" of the board;[26] and when "in the opinion" of the board, local health officers "fail or refuse to enforce the laws and regulations necessary to prevent and control the spread of communicable or infectious disease" or in "a public emergency," the state board may displace the local authorities and perform all the health functions.[27] Finally the board possesses "all powers necessary to fulfill the duties prescribed in the statutes and to bring action in the courts for the enforcement of health laws and rules.[28]

Policy of Board It will be noted that the later laws have extended and widened the powers of the board to act in fields specifically mentioned in the statutes, and that there has been a shift from discretion for the local boards to discretion for the state board with a corresponding tendency on the part of the legislature to centralize health administration in the state board.

A survey of the board's work indicates that it has used education and persuasion in these new and enlarged fields, depending upon consent instead of legal coercion to obtain compliance. The annotators of *Burns* statutes have found only twenty-four cases during the entire history of the board which are of sufficient importance to cite in connection with the collection of statutes which contain the duties and powers of all the health boards in the state. Many of these have only an indirect relation to health.[29]

However, during this period the state board of health has not

been unmindful of the limits of its legal powers for it has frequently sought interpretations by the attorney-general not only of its own but also of the powers of the local boards. For example in the years 1917-20, 33 opinions were asked for; 1925-26, 17; 1929-30, 17 opinions; and in 1933, 13 opinions.[30] Moreover, the state board has recently had a deputy attorney-general assigned to its legal work.

An evidence that health work in Indiana has been actively carried on despite the avoidance of battles in the higher courts is the decline over a 22-year period in the deaths, as shown by the accompanying table caused, by such diseases as typhoid fever and tuberculosis, diseases which are generally considered to be subject to control.[31]

	Number of deaths for			
	1916	1917	1938	1939
Typhoid Fever	585	481	29	39
Tuberculosis	3728	3874	1380	1412

The centralization apparent on the face of the law has been of a type that requires further explanation by examining the history of the struggle over the local part-time health officer.

Local Health Officers Dr. J. N. Hurty, who was secretary of the state board of health from March 12, 1896 to September 30, 1922, was strongly opposed to what he called "*the part-time doctor-health officer,*" the health officer of the towns, cities, and counties;[32] and in the first Indiana *Yearbook* published, the report of the state board of health referred to the system of local health officers then in effect as "weak and absurd."[33]

> The greatest difficulty of the law is the health officer system . . . . any physician who possesses a license to practice is eligible to the appointment, not taking into account his having skill and knowledge concerning the work he is to do . . . . the present law is out of date, sadly unscientific. . . . It is like an old, wheezy, back-number locomotive, which can run a little and pull a light load. . . . The present law for its execution employs doctors for such time as they choose to give from their practices.
>
> No man can serve two masters, yet the law attempts to accomplish this impossibility. The doctor-health officer, being in the practice of medicine, is in competition with his brother physicians, and, of course, cannot secure their co-operation . . . .
>
> Another gross defect in the old law lies in the fact that only a very few doctors are, in even slight degree, educated or trained in disease prevention methods. Most doctors have studied *cure* only. The ounce of prevention they do not know how to apply. Their skill lies in applying the costly pound of cure.[34]

The "other defects" were listed in outline form and the remedy sug-

gested was full time county health officers especially trained in preventive medicine and appointed from an eligible list made up as a result of a physical and mental examination.[35]

After these reports by Dr. Hurty ceased, the annual reports of the state board of health did not contain so many references to the system, nor were they as blunt, but it seemed evident that the board shared Dr. Hurty's feeling that the system was outmoded. An experimental "all-time health department in not to exceed three counties" was established in cooperation with the International Board of Health,[36] and one report explained that though the function of the board was to advise and assist local officials because of the "obsolete and impractical system," and that the board was compelled "to not only take the initiative in but to undertake to actually perform to the best of its ability whatever constructive health work is carried out in most communities of the state."[37]

The board did not ask for more authority; it considered its powers "clear and ample,"[38] but it wanted full-time local officers trained in public health, not alone in individual curative medicine. It was not until 1935 that a statute empowering local boards to employ such full time health officers was enacted.[39] But then local boards did not see the necessity for the change and in the intervening seven years only one has been appointed, and funds to pay another have been appropriated.

Social Security Act and Health It is understandable that the board would be ready to provide for trained health officers in the localities when the opportunity to do so presented itself.

Instrumental in creating this opportunity was Title VI of the Social Security Act of 1935. It provided for a continuing annual appropriation of eight million dollars which the Surgeon General of the United States Public Health Service was to distribute among the states pursuant to rules he prescribed "after consultation with a conference of the State and Territorial health authorities."[40] To establish and maintain "adequate public health services" in states, counties, and health districts, including the training of personnel for State and local health work" was said to be the purpose to be subserved by the rules. Certain standards to be achieved by local health administration were formulated at a conference in June, 1935, and the basic principles of local organization were declared to be as follows: (1) The public health services of the city, county, or district shall be under the direction of a full-time health officer, (2) The personnel of the city, county, or district health department should include, in addition to the full-time health officer, such medical

assistants, public health nurses, sanitation officers, and clerks as will insure at least a minimum of effective health service commensurate with the population and health problems of the area concerned.[41] It was further recommended that in the allocation of funds to the states the Service should "strive to foster" local health organization with a "minimum personnel of one full-time health officer, two nurses, one sanitary officer, and one clerk."[42]

A special session of the Indiana legislature in 1936 passed an act authorizing the state board of health "to cooperate with the federal government in the administration . . . of Title VI of the federal 'Social Security Act' "[43] by establishing and maintaining adequate public health services and by "developing such plans as may be found necessary to effectuate the services contemplated in this section and to comply with the rules and regulations of the public health service of the Department of the Treasury of the United States government issued and prescribed in conformity with and by virtue of the federal 'Social Security Act.' "[44]

The aid proffered by the federal government made it possible for the state board of health to put into effect its long-standing contention and on February 1, 1937, it established four district health departments in the counties adjacent to the Ohio River, excluding Vanderburg County in which Evansville is located. In the next annual report of the board the district departments were described as follows:[45]

> **District Health Departments** After considerable study, it has been determined that the best course the State Board of Health could pursue in furthering public health work over the state, is to set up full-time district health departments, each district comprising from three to five counties. . . . Local responsibility will be best discharged by the county financing the employment of public health nurses, sanitarians and part-time health officers, to be appointed by the county commissioners, as provided by law. These county health workers, then, would look to their district health department for aid and guidance, just as they now look to the Indiana State Board of Health. By this arrangement, the work of the central office is decentralized. By this decentralization, it is made much more sensitive to the local conditions and needs, and is thus better able to bring its many services more directly to the people.

In 1941 this process of decentralization was carried further. The burden for safeguarding the production and processing of fluid milk was shifted from the Bureau of Dairy Products of the state board of health to local communities. Routine inspection of dairies and pasteurization plants was discontinued by its inspectors. The function of the bureau was then shifted to an educational program dealing with the need for clean milk and to recommending that cities adopt

Grade A milk ordinances and make an appropriation or otherwise provide for employing an inspector subject to the approval of the state board who would assist producers and processors in using sanitary methods in milk production and distribution. Communities which take the initiative were to receive the assistance of the state board in training their own inspectors. While this change may have been precipitated at the particular moment by some reduction in funds available for milk inspection and by a desire to make a few personnel adjustments before the 1941 merit law went into effect, it is evident from the manner in which representatives of the dairy products bureau handle public discussions that they do not wish directly to compel producers and distributors to use sanitary methods until after the community is favorably disposed towards such action. Not only is this procedure in line with the previous approach of the board to such problems, but according to its finding this is the method which "almost all of the other states" have found "to be the most satisfactory way of bringing about the best results."[46]

With respect to policy formation, selection of personnel, advice, the board has been willing to follow the trend towards centralization, but it has decentralized administration, the acceptance of programs, the initiative for enforcement.

County Health Officer The dissatisfaction of the state board of health with the part-time county health officer, or commissioner, as he is frequently styled in the statutes, the type which is found in Clark County, has been alluded to. Each county is to have "a county health commissioner;" the "board of county commissioners of each county . . . with the approval of the state board of health, [shall] appoint a regularly licensed physician who shall be known as the County Health Officer."[47] He must be "legally qualified to practice medicine, suitably trained in sanitary science," and his qualifications are to be satisfactory to the state board of health. His term of office is four years. He is subject to removal by either the county commissioners or the state board, and his compensation is three cents per capita, counting all persons in the county exclusive of cities having separate health officers, but in no case is he to receive less than $200 nor more than $1,800 salary per year. In addition he may receive actual expenses incurred in the performance of his duties.[48]

Duties The duties of the county health officer are numerous and appear in many statutes which are occasionally repetitious. The area of his jurisdiction is the county.[49] In general he is directed to

"enforce the health laws of the state, [to] . . . enforce all the rules and regulations of the State Board of Health," to enforce the rules of his own board (the county commissioners, i.e., the county board of health). And he is required by order of the state board of health to familiarize himself with the "State Health Law, the vital Statistics Law, the Quarantine Law, the Pure Food and Drug Law, and all the laws" he is to enforce, as well as, "all the rules of the State Board of Health for the enforcement of said laws."[50] He is given general inspectional and remedial powers to discover conditions favorable to disease and their elimination. Also when any private person permits or maintains conditions inimical to public health, it is the "duty of all health commissioners . . . upon hearing in any way of the existence of said unlawful conditions within their respective jurisdictions, to order their abatement, in writing, if demanded, and specifying particularly wherein said conditions may transmit disease, and naming the shortest reasonable time for abatement."[50a] A rule of the state board provides that, "in June of each year . . . [he] shall make a sanitary inspection of . . . [his] respective jurisdiction, making a full record thereof in . . . [his] regular record books. . . . A copy of the report of said sanitary inspection shall be sent to the State Board of Health by July 15, following."[51]

A rule of the state board of health makes more specific the general police powers conferred on the health officers by the statutes cited above. "All county health commissioners . . . shall have the police powers of a constable at law for the enforcement of all health laws, health ordinances and health rules."[52]

Coming now to the more specific duties and powers of the county health officer, the first which may be mentioned is that concerning reports, chiefly of vital statistics, and secretarial work. "It shall be the duty of the county health commissioners . . . to collect, record and report the vital statistics of their respective jurisdictions, to keep full and permanent records of their public health work, minutes of all meetings of their respective boards, and to make a monthly report of the work done by them and their deputies to their respective boards; said report, after approval, to be made of permanent record. Reports of county health commissioners shall be made to the state board of heath, and careful records of said reports shall be kept in county health record books."[53] These reports are to be made on blanks furnished by the state board of health, that they are to be kept at the county seat as other records are kept, and the weekly morbidity reports are to be made to the state board.[54] The

blanks for reporting death statistics are: (1) death certificates, (2) death certificates for coroners, (3) burial permits, (4) official envelopes, (5) monthly statement cards. There is also a death record-book which the county health officer is required to keep. Under certain cases the health officer is required to make out and sign the death certificate. It is his duty to issue burial permits in his jurisdiction. He is to copy into the death record-book death certificates and send the certificates to the state board of health on the fourth of each month. He is to report it if there are no deaths.[55] The blanks for birth statistics are: (1) birth certificates, (2) supplemental report of birth, (3) official envelopes. The county health officer is also required to keep a birth record book in which he is to copy birth certificates, and on the fourth of each month he is to send all original birth certificates to the state board. Births in his jurisdiction are to be reported to him within 36 hours. The supplemental report is to be filed if the given name of the child is not recorded in the original certificate and as soon as the child is named.[56] The blanks for reporting marriage statistics are: marriage returns and quarterly return blanks. The former are sent to the county clerks and all marriages the licenses for which are issued by a clerk are to be reported by him to the county health officers by the fourth day of each month. The health officer must record each marriage in the official marriage book and forward the quarterly return blanks properly filled out to the state board within ten days after the end of each quarter. The health officer is to record in his books and to report monthly to the state board all cases in which free scarlet fever and tetanus antitoxin or antirabies serum has been furnished in his jurisdiction. Violations are to be reported to the prosecuting attorney of the circuit court.[57] The reports concerning communicable diseases will be described subsequently.

The county health officer has been given specific duties to prevent the spread of contagious, infectious and communicable diseases. He is to investigate, if he suspects or is informed of their existence when no physician is in attendance or fails to report;[58] persons ill with such diseases are to be quarantined by him or his deputy and a placard is to be posted on the premises upon which is to be the name of the disease and a notice prohibiting unauthorized people from entering the premises. With regard to some types of diseases, he is permitted by rule of the board of health considerable discretion.[59] The statutes are specific and the rules of the board are much more so with respect to the duties of the health officers in disinfecting persons, premises, and all public conveyances that have been in contact

with or used by persons ill with the contagious diseases.[60]

Persons afflicted with communicable diseases, if not under the care of a physician, may be removed by the county health officer, if in his judgment it is necessary, to a place where they can be cared for. He may also provide for nurses, attendants and materials necessary for proper treatment.[61]

The county health officer is to report by the tenth of each month to the state board "the names and addresses of, and all other information available concerning persons infected with tuberculosis."[62] He is required to notify in writing the owner of, or the agent for, the premises occupied by a person infected with tuberculosis of that fact and also of his own duties to disinfect the premises after the removal of the patient. The owner or agent is also obligated to notify the health officer when the infected person is removed from the premises whereupon the "health officer shall, himself, or through his deputies, immediately disinfect such apartment, house, room or premises in the manner now or hereafter to be prescribed by the state board of health."[63]

Reports to Public Health Service The United States Public Health Service supplies the state board of health with disease record cards and franked envelopes. These cards and envelopes are distributed to all county health officers. All reports of communicable diseases are to be entered in the county disease record books and the cards are to be returned to the state board. The rule provides: "Each Saturday a summary of the communicable disease reports received by county . . . health officers during the previous seven days, shall be sent to the Indiana state board of health along with the weekly summary card giving the number of each communicable disease known to the health officer to be present within his jurisdiction. The weekly summary card must be sent to the Indiana state board of health by the county . . . health officers even if there are no cases of communicable disease to report, stating this fact."[63a] The diseases which this rule of the board lists as communicable and which are therefore to be reported are:

Anthrax
Chancroid
Chickenpox
Cerebrospinal Meningitis
Diphtheria
Encephalitis Lethargica
Endameba Histolytica
Erysipelas
Glanders
Gonorrhea
Hookworm
Impetigo Contagiosa
Influenza
Leprosy
Malaria
Measles
Mumps
Ophthalmia Neonatorum

Pellagra	Syphilis
Pneumonia	Trachoma
Poliomyelitis	Trench Mouth
Rabies (in human)	Tuberculosis
Rabies (in animals)	Tularemia
Scarlet Fever	Typhoid Fever
Septic Sore Throat	Undulant Fever
Smallpox	Whooping Cough

The county health officer has numerous duties connected with food laws. He is an inspector "subordinate to the state board of health" for the enforcement of sanitation in establishments manufacturing or distributing food and foodstuffs. He has "full power at all times to enter every building, room . . . occupied or used or suspected of being occupied or used for the production for sale . . . distribution or transportation of food, and to inspect. . . ." Reports of violations may be made either to the prosecuting attorney or to the state food and drug commissioners.[64] He has similar powers for inspecting cold storage establishments, and he is in addition to report violations of the requirements for marking foods in cold storage.[65] It is required that employees in bakeries must be free from infectious diseases, and that they shall have a certificate of a medical examination showing this. Such examinations may be made by the county health officer.[66] He may at any time "deemed necessary" by him order such an examination to be made. An order of the state board provides that the blank certificates may also be obtained from him.[67] He is likewise empowered to certify as to the purity of the water used in bakery products.[68] He is given the power, along with other persons, to make a complaint to the state board of health that a water course is being polluted or that a public water supply is impure or dangerous to health.

The county health officer may compel the parents of an infant threatened with eye inflamation to place the infant under the care of a legally qualified physician.[69] It is his duty to give notice to the state board of health and the prosecuting attorney of the fact if he has reason to believe that the act regulating the manufacture of mattresses is being violated.[70] He is empowered to inspect buildings for rat infestation,[71] even to enter without a warrant for purposes of discovery or of destruction of rats. When the county commissioners provide for a rat extermination campaign, it may be carried on under his direction. On the approval of the commissioners he "may receive gifts, donations, or other financial assistance from private individuals, corporations, or the state or federal government, provided the conditions under which the grant is made are fully understood and have

the approval of the state board of health."[72] In event that the county health officer finds evidence that a death has resulted from violence or criminal practice, he must refer the case to the coroner who is to investigate according to law.[73] And finally he is empowered to order any dwelling improved to make it fit for occupancy,[74] or he may order it vacated entirely.[75] However, the statute provides for an appeal to the circuit court by persons who may feel themselves aggrieved by such an order. The decision of the court is to be final.

Township Health Duties Though the township trustee has a considerable number of health functions to perform, they flow from his duties ex-officio as "overseer of the poor."[75a] For a time, particularly during the last 20 years of the last century, there was some division of authority with regard to the employment of physicians to attend the medical needs of the indigent. The county board of commissioners was authorized to perform that duty, but frequently a physician employed by them would not be accessible to the person requiring his attention or decline to serve or for some other reason be unavailable, whereupon township trustees occasionally employed another doctor. In a series of cases in the Indiana supreme and appellate courts between 1883 and 1887, the power of the trustees to employ doctors to care for the indigent when the one designated by the board of commissioners was unable or unwilling to serve was definitely established. It was also determined that this action of the trustee created an obligation on the county to pay for such services.[76] However, if the board of commissioners provided for adequate medical aid for the poor, doctors employed by the trustees for such purposes could not recover their fees from the county.[77] Ignorance on the part of the trustee of the fact that a doctor chosen by the board was available did not warrant the trustee employing another doctor,[78] though such action by the trustee created the presumption that the doctor employed by the board was not fulfilling his duty.[79] This division of authority and consequent uncertainty was eliminated by statute in 1899 which provided that the board of commissioners "shall have no power to contract for services of any physician to attend upon any poor of the county other than inmates of the county institution."[80] Since that date much of the power and the responsibility for medical care for the indigent has belonged to the township trustees.

An act of 1935 elaborating duties set forth in previous statutes contains the following: "He [the township trustee] shall in cases of necessity, promptly provide medical and surgical attendance for all of the poor in his township who are not provided for in public in-

stitutions; and shall also see that such medicines and/or medical supplies and/or special diets and/or nursing as are prescribed by the physician or surgeon in attendance upon the poor are properly furnished."[81] It is made his duty to investigate those applying for relief, to provide temporary medical aid for transients,[82] and if the permanent residence of such needy persons is not determinable, the trustee is to provide medical aid required on the same basis as to any other person. This aid to transients even includes hospitalization.[83]

It appears to be a settled principle that townships have a legal obligation to provide necessary medical aid, and while the trustee has discretion as to when an indigent person requires such aid[84] there are two avenues of appeal from his decision. One is an appeal by a person, who believes he is entitled to medical aid under the law but is refused it by the trustee, to the board of commissioners of the county which may direct the trustee to give the aid.[85] The second arises in cases of emergency when a physician may give the necessary treatment to injured persons before contacting the trustee[86] or even if the trustee refuses to authorize such treatment; and the fee in such events becomes an obligation of the township which the courts require the trustee to pay.[87] Residence of the injured person has no effect on the obligation of the township; in fact if the necessity arises to take an indigent transient who is injured out of the township where an accident occurs for emergency care there is still an obligation on that township to pay for such care. However, the courts have shown a tendency to narrow this second avenue of appeal by third parties to an emergency type of aid in which life is threatened. In one instance a doctor employed by a trustee to care for the indigent ill refused to treat a woman who appeared to be chronically ill whereupon another doctor did treat her. The supreme court in refusing his plea for compensation said that the "benefactions of the state are to be dispersed in pursuance of a carefully devised plan, which is to be executed by officers designated . . . and not according to the individual notions of any citizen as to what humanity may require."[88] Likewise a mortician was unable to secure compensation for the interment of a corpse, which due to hot weather was in an advanced state of decomposition, despite the fact that the trustee could not be found to authorize burial.[89]

Other health functions of the township trustee or the township which are to be paid for by the trustee are; to provide for the burial of deceased persons leaving insufficient funds to inter them;[90] to care for and maintain public cemetries;[91] to keep "diphtheria, scarlet fever, tetanus antitoxin, and antirabic virus blanks" for the supply of all

"physicians when needed;"[92] and the discretionary provision of "insulin free of charge to citizens of such townships who are found to be in need of insulin treatment . . . who are financially unable to purchase such insulin."[93]

Miscellaneous Health Authorities

There are, in addition to the officers whose duties have been examined in some detail, others in the Charlestown area who have duties and powers with regard to health. For example, public school teachers: "Whenever . . . the temperature of a school room falls to sixty degrees Fahrenheit or below, without the immediate prospect of the proper temperature . . . [70°] being attained, the teacher shall dis-

Schools

miss the school. . . ." Also she is directed to send home "any pupil who is perceptibly ill in any way, or who is unclean and emits offensive bodily odors or who is infested with lice or other vermin. . . ."[94] And "there shall be taught in each year in the fifth grade of every public school in Indiana, the primary principles of hygiene and sanitary science, and especially shall instruction be imparted concerning the principal modes by which . . . dangerous, communicable diseases are spread, and the best sanitary methods for the restriction and prevention of each such disease."[95]

Industrial Board

The Industrial Board is another official body with health powers incidental to its functions, such as requiring "medical service for injured employees; [approving] claims for medical service or attorney's fees and the charges of nurses and hospitals . . . [and ordering] physical examinations."[96]

Prosecutor

As a part of his law enforcement functions the prosecuting attorney is to prosecute violations of health statutes, e.g., the "Uniform Indiana Food, Drug and Cosmetic Act"[97] whenever a designated health officer reports violations to him.[98]

Clerk of Court

The clerk of the circuit court is required to report by the fourth day of each month the number of marriages for the preceding month "with such facts relating thereto as may be provided for on blanks furnished to such clerk from the state board of health."[99] The clerk is the officer who licenses physicians to practice "medicine, surgery and obstetrics within the state of Indiana."[100] He issues the license to persons who have procured a certificate from the state board of medical registration, which certificate is given to persons whom the board has found qualified.

County Council

It is the duty of the county council to appropriate funds and of the county commissioners to approve accounts when properly itemized and presented for "expenses incident to disease

prevention."[101] This appears to be a ministerial duty from an opinion of the attorney-general that a failure of either to perform the duties indicated would warrant a mandamus from the circuit court.[102]

County Commissioners Other duties of the commissioners are concerned with cemeteries, for example, "lands conveyed to the board of county commissioners, by deed duly recorded, for the purpose of a public or private cemetery, shall be held by such board forever in trust for such purpose."[103] Two other groups of officers have health duties or powers incidental to their regular functions. (1) "Sheriffs, constables, marshals, police, and all peace officers shall, if called upon by health officers, aid in the enforcement" of

Town Trustees certain acts related to public health. (2) The board of trustees of the town of Charlestown is authorized by statute to "declare what shall constitute a nuisance . . . . and take other measures for the public health which they shall deem necessary." In a recent case the Supreme Court of Indiana held that standards for controlling conditions in a tourist camp set by the board of trustees of a town might be higher than those set by the state board of health.[104]

Physicians Doctors are required to report contagious diseases.[105] The following list of diseases by the rule of the state board is to be reported to the county health officer:[106]

Anthrax
Chickenpox
Diphtheria
German Measles
Glanders
Hydrophobia
Influenza
Lethargic-Encephalitis
Measles
Cerebrospinal Meningitis
Mumps
Opthalmia Neonatorum
Poliomyelitis
Pneumonia
Scarlet Fever
Smallpox
Tetanus
Trachoma
Tuberculosis
Typhoid Fever
Whooping Cough
Tularemia
Undulant Fever
Malaria
Bacillary Dysentery

Another list is to be reported directly to the state board. It is:[107]

Gonorrhea
Chancroid
Syphilis
Leprosy
Botulinus
Undulant Fever
Asiatic Cholera
Bubonic Plague
Typhus Fever
Yellow Fever
Malaria
Vincent's Angina (trench mouth)

Leprosy is added by statute to the above list which is to be report-

ed to the state board[108] and tuberculosis is likewise singled out especially by statute to be reported to the county health officer, especial mention being made of the duty of school physicians to "report the name, age, sex, color, school and home address of every school child, teacher or school janitor having tuberculosis who comes under his observation in the performance of his duties in connection with the medical inspection of schools, within five days after such fact comes to his knowledge. . . ."[109] The details of the reports as to the social diseases are set forth in a rule as follows:[110]

> It shall be the duty of every physician in the state of Indiana, to report forthwith in writing, to the state board of health on blanks furnished by said board of health, the name, address, age, sex, color, marital state, occupation, name of disease and such other related statistical facts as may be required, of every person coming under his examination or care having the following infectious diseases, to-wit: Gonorrhea, chancroid, syphilis. . . .
>
> Whenever a physician shall report in writing to the state board of health that a person having gonorrhea, chancroid, or syphilis in an infectious state, whom he has treated or examined can not properly and sufficiently be treated at home, he shall communicate such fact to the state board of health and make such recommendations as he may deem proper; and when it is possible and in the judgment of the state health commissioner it is advisable, the said reported person shall be quarantined and treatment given until such time as the patient may be no longer infectious.

Physicians must report deaths and births,[111] and since January 1, 1940 they are to indicate in every report of a birth or stillbirth whether a blood test for syphilis was given during pregnancy.[112]

In addition to the regulations imposed by statute and by order of the state board of registration and examination with respect to licensing physicians and the practice of medicine,[113] duties are put upon them with regard to treatment of patients. For example, physicians are required at time of diagnosis to take or cause to be taken a sample of blood of every pregnant woman[114] and to submit it to "an approved laboratory for a standard serological test for syphilis."[115] They also are required to examine the eyes of infants at birth for evidence of infection and to apply such prophylaxis as may be recognized in medical science.[116]

A legal duty to report to the county health officer is also imposed upon any other private person, though unlicensed to practice medicine, who is in a position of responsibility with relation to persons who have contagious diseases, or who die, or who have children born to them.[117] Another kind of duty with regard to disease is the obligation of a person having charge of living quarters which have been occupied by a person with tuberculosis to have them "thoroughly dis-

infected" by the health officer before allowing others to occupy them.[118] Employers and employees alike are obligated to observe health and sanitary regulations in the manufacture, storage, and distribution of foods.[119]

Town Health Officer At the time that the powder plant was located in Charlestown the town had no town health officer. The statute authorizing towns to have such officers had been repealed in 1935. Charlestown does not now have such an officer even though it probably is entitled to have one, because it seems that it has qualified as a city of the fifth class.[120]

The ordinances of Charlestown make it possible for the community to have its own health officer whenever it chooses to act as a city of the fifth class, and they specify a variety of duties and functions to be discharged and performed by such an officer.

Charlestown Health Ordinances An ordinance passed April 4, 1910 contains these powers and duties. They are: (1) to order the cleaning of vaults and the cutting of weeds; (2) to notify the town marshall in the event of the failure of property owners to comply with the above to clean the vaults and cut and dispose of the weeds;[121] (3) to enter upon public and private property "for the purpose of making a sanitary survey" (4) and "if a nuisance or any unsanitary condition be found, it shall be the duty of the Town Health Officer, when informed of the existence of the same, to immediately notify the person or persons so offending in writing, fixing the time limit to abate the nuisance within the time specified," (5) to notify the town marshal to abate the nuisance, (presumably if the private person maintaining it does not act in a reasonable time); (6) to "impose quarantines" in all cases of cholera, measles, whooping cough, smallpox, diphtheria or membranus croup, and scarlet fever when they are found to exist; (7) and to placard all these and in addition typhoid fever and pulmonary tuberculosis;[122] (8) to isolate a patient with smallpox either in the house where the patient was found or in an isolation hospital; (9) to "employ one or more intelligent men to act as deputies" if "the work of the prevention of the spread of infectious or contagious diseases is more than can be reasonably expected" and if he receives "the consent of the chairman of the town board;" (10) to thoroughly disinfect with formaldehyde according to the rules of the state board of health all houses "wherein infectious and contagious diseases" were: (This was to be done "at the expense of the Town as the work is obviously for the benefit of the people"); (11) to keep a complete record in the minute book of the board of

health of all disinfections, vaccinations and "all other health work done"; (12) to wear a linen or rubber coat with skull cap when visiting patients with the above-mentioned quarantinable diseases.

The town marshal and his deputies have enforcement duties imposed upon them. Such duties are, cutting weeds and cleaning vaults,[123] enforcing the trailer ordinance which prohibits the occupation of any trailer in a lot not licensed by the state board of health,[124] and enforcing the ordinance providing for the collection and disposal of garbage.[125] Physicians are required by ordinance to report "all cases of cholera, typhoid fever, measles, whooping cough, smallpox, diphtheria or membranus croup, scarlet fever and pulmonary tuberculosis"[126] to the health officer; and when they visit persons known to be infected with smallpox, diphtheria, and scarlet fever "all physicians . . . shall protect their clothing and hair against infection, and shall thoroughly disinfect their hands before coming into contact with the public. To accomplish this a linen or rubber coat with skull cap shall be worn by physicians . . . when visiting patients afflicted with the diseases named and said linen or rubber coat and skull cap shall be carried in a hand bag or other approved receptacle and kept well disinfected with formaldehyde. The hands shall be disinfected by washing with antiseptic soap and applying an effective anti-septic."

Sewers There is a longer list of regulations, duties and prohibitions on other private individuals. No person may lay, alter or repair sewers except those licensed or under the supervision of one licensed by Charlestown, and the municipal sewer may not be tapped without a permit.[127] When connections are made to the sewer they are to be inspected before being covered.

The licensing and inspecting was done by the field representative of the state civilian defense director's office so long as he was stationed in Charlestown. He acted as the deputy for the clerk-treasurer. The kind of materials which may be used by private persons in connections with the sewer is specified;[128] there are obligations im-

Wastes posed upon industrial establishments to pre-treat industrial wastes before turning them into the sewer; and obligations on all persons to see that discharges from their property into the sewers meet certain standards. Regulations with regard to the construction and maintenance of cesspools, septic tanks, privies, and water closets are set forth and the regulations of the state board of health with regard to them are incorporated into the town ordinance.

Trailers A series of duties was imposed upon private individuals

with regard to parking trailers only in places approved and licensed for use as camp sites by the state board of health.

Garbage Likewise duties were imposed upon private individuals with regard to the disposal of garbage. They might dispose of it themselves provided they followed the regulations or they might deposit it in specified types of receptacles for a collector who was required to have "written permission from the Board of Health" to collect and dispose of it.[129]

The coming of the munitions industry to the Charlestown area was the occasion for some of these regulations. For example, it is doubtful if any trailer ordinance would have been considered apart from the necessity of regulating nearly two dozen such camps which appeared in the corporate limits of Charlestown by March of 1941. The arrangement for the collection of garbage, namely neighboring farmers collected it for their hogs, had apparently been working satisfactorily until the population began to increase so rapidly. Trash and rubbish collection was also provided for in the garbage ordinance, a new departure for Charlestown, though there had been a general prohibition against "any person, persons, company or corporation . . . [throwing] or . . . [depositing] or . . . [suffering] to be thrown or deposited or . . . [suffering] or . . . [permitting] any child, servant, member of the family or any other person under his, or her, or their control to throw or deposit any manure, human excrement, urine, rubbish, paper, slops, putrid or unsound animal or vegetable matter or any filthy, noisome or unwholesome liquid or slops or any liquids or slops or substances that are liable to become unwholesome in or into or upon any street, lane, alley, sidewalk, gutter, crossing, lots, cellar, premises or commons, and it shall also be unlawful for anyone to allow rank weeds to grow or to slaughter poultry or animals within the corporations [limits] of said town."[130] There was no previous experience with the sewer system since it was completed sufficiently for use first about April 1, 1941. So far as the available ordinances indicate there were no regulations with regard to water-closets until they were incorporated in the sewer ordinance of March 25, 1941, this in a town where there was previous to this no other means for the disposal of human wastes.

Previous to the advent of the munitions industry there was a miscellaneous list of duties of private persons, e.g., prohibitions against spitting on the sidewalk,[131] maintaining nuisances or anything injurious to health or indecent or offensive to the senses; the duty to cut weeds and clean vaults;[132] the duty of householders to report contagious diseases if no physician was in attendance; and a pro-

hibition against operating a stockyard within the corporate limits of the town.[133]

Milk Inspector Although a milk inspector is not provided for by any ordinance of Charlestown itself, the indirect effect of his work is such that he should be mentioned at this point. In a subsequent section of this study reference will be made to the provision made for milk inspectors by the Grade A milk ordinances recommended by the United States Public Health Service and adopted by five cities in the Charlestown area. The inspector carries on his work in the area from which milk comes to the Charlestown market, and because the producers of milk for the nearby Grade A milk cities also sell milk in Charlestown, the result is that Charlestown receives Grade A milk by virtue of the work of this officer.

Public Health Nurses The public health nurses in Clark County were not local health officers, but they have carried on their work in Charlestown as well as in other sections of the county. The source of authority for the position of public health nurse is state law, but in Clark County the service was financed partly by the county and the services were performed under the direction of the district health department.

Public Welfare and Hospitals The health functions of the Department of Public Welfare which are incidental to its regular functions will be dealt with in a forthcoming discussion of general administrative services in the Charlestown area. Hospitals will be considered there also.

II

SPECIFIC HEALTH SERVICES IN CHARLESTOWN AREA

Recapitulation By way of recapitulation it may be pointed out that the health agencies operating in the Charlestown area may be divided into two groups: (1) those whose health functions are incidental to their regular duties, such as, the township trustee, the industrial board, the county board of commissioners, the county council, sheriff, marshals, police, prosecuting attorney, and the clerk of the circuit court; (2) those whose primary functions are public health services. These include the county health officer, the United States Public Health Service, the state board of health with its sub-divisions, and milk inspectors. In addition to the duties of these official agencies and persons it should be noted that some duties of reporting were placed upon private individuals.

Township Trustee Most incidental health services are performed, if at all, to such a limited extent as not to require extended comment. In the township of Charlestown the expenditures for burial and for medical care were analyzed. The results were somewhat inconclusive because the data on the age distribution of the population in the locality were not complete.

Clark County The duties and powers of the county health officer have been surveyed earlier; the operation of the county health office can be summarized briefly as primarily concerned with the reporting of vital statistics, with special attention being given to births, marriages, and deaths. The reporting of diseases seems to have been carried on only partially, one cause no doubt being that many cases of illness are not attended by physicians, while a second cause may have been either a lack of proper diagnosis or a failure to make the appropriate report. Quarantining and the posting of quarantine cards is apparently done in conformity with law, although the Clark County health officer feels that immunization is the effective way of combating communicable diseases. County health officers often fail to perform some of their legal duties because they are unfamiliar with the numerous details of the statutes and administrative regulations. The county health office pays approximately $600 per year and an attempt to perform all of the duties enjoined on the officer would require all of his time and energy, so that the work to be done would compare with that involved in a lucrative practice.

United States Public Health Service While the United States Public Health Service is presumed to be concerned with the health of the persons connected with the service of the United States and those in interstate commerce, it reaches far beyond such narrow boundaries to influence the health work in many states and their localities by grants-in-aid, assistance in personnel, advice, consultation, the establishment of standards, and codes; free mailing privileges to those sending it reports is often given. It was instrumental in the establishment of the Indiana district health departments along the Ohio River during the 1937 flood. The need for local health administrative units which had been recognized by the state board was increased by the flood, and their establishment was made possible at that time by assistance both in personnel and funds. The cost for all public health purposes in the five county area including Charlestown for the fiscal year 1940-1941 was slightly in excess of $30,000. This was divided about equally between the district health department and the city and county health officers. The state board allotted $4,700 to the district from funds received from the United States Public Health Service under Title VI of the Social Security Act. In addition to this money the United States Public Health Service paid the salary of a doctor and a nurse both of whom it supplied and both of whom worked in the district. Other activities of the service will be alluded to later.

The district health departments of the state board of health are administrative agencies of the state board which are aimed at taking that portion of the state board's field functions to the location in which they are to be performed. It is as though various persons attached to the divisions of the state board were moved to the locality where the field activities are carried on. They constitute the organization known as the district health department. For the most part the direction, reporting, and consultation flowing back and forth between the district department in the Charlestown area and the state board at Indianapolis are channeled through the administrative bureau of the state board called the Bureau of Local Health Administration. However, persons from other bureaus in Indianapolis going into the area of a district health department deal directly with the persons found there and the reports of the various bureaus of the state board contain the corresponding activities of the district departments.

Defense Planning Coordinator One other administrative arrangement which was present in the Charlestown area during the period of greatest strain needs to be alluded to at this point. In

October, 1940, the governor, acting under his executive powers, and with money from his contingent fund, set up the "Governor's Emergency Defense Council." A defense planning co-ordinator was sent to Charlestown. This act of the governor subsequently was given statutory support by the passage of the State Defense Act.[134] It came to be the function of this official to give advice to the board of trustees of Charlestown, to consult with them, to administer their ordinances; and, as liaison officer, to co-ordinate the activities of the many government agencies operating in the community. So far as the authors could observe this official had no occasion to co-ordinate the activities of the state and United States health services, though he did so with the county health officer and the others, but he was most active in correlating the district health department with the town board of trustees. Part of the success of the health work is due to the cooperation of this defense co-ordinator.

Sanitation One of the earliest problems connected with the coming of the munitions industry to the Charlestown area was the disposal of the industrial wastes from the smokeless powder plant. Preliminary estimates indicated that thousands of pounds of sulphuric acid, ethyl alcohol, and millions of gallons of washing water would be discharged into the Ohio River. Hundreds of pounds of cotton might also be discharged. Subsequently, the capacity of the powder plant was greatly enlarged so that the amount of wastes actually discharged was very great. In addition, there was domestic sewage from the plant that had to be considered in sewage planning. As originally projected about thirty-four hundred persons were to be employed. This figure had to be raised when the plant was completed. It was estimated by an engineer that sewage from this latter source would amount to twenty-five gallons per capita per day.[135] Subsequently, a large bag loading plant was located near the powder factory. Its industrial wastes, if any, are inconsequential, but the sewage is comparable to that of the powder plant.

Powder Plant Waste The authors did not investigate the ownership of the land and buildings of the powder plant, but if it is owned and operated by du Pont it appears that there was legal power to control the discharges from the powder plant. A provision in an act of 1909, that restrictions in that act against the discharge of sewage and other wastes into any streams, were not to be enforced if that stream formed a boundary with another state "so long as the unpurified sewage of cities, towns, villages, corporations, persons or firms of such other states is permitted by law to be discharged into

such streams. . . ."[136] The plans of the du Pont engineers did not call for the discharge of plant wastes and sewage directly into the Ohio River, but into a small creek, Jenny Lind Run, three or four miles above the point at which it emptied into the river.[137] Some wastes are being discharged also into another small creek, Lick Run. There are two additional statutes which are calculated to prevent stream pollution. The first, an act of 1927, provides in part:[138]

> It shall be unlawful for any person, firm, or corporation to throw, run, drain, or otherwise deposit into any of the waters of this state . . . any dyestuff, acid, coal-tar, oil, logwood or any by-products or derivative of any such, or any other poisonous substance, which of itself is deleterious to the public health or to the prosecution of any kind of industry . . . agricultural . . . pursuit . . . or whereby any livestock industry . . . any lawful use of any such water . . . by the State of Indiana or any political subdivision thereof may be lessened or impaired . . . or any beneficial animal or vegetable life . . . may be destroyed or jeopardized. . . .

The state board of health was then given the explicit duty to study and investigate "the waters of the state and waters forming boundaries thereof, for the purpose of determining . . . the causes contributing to their pollution, the sources and the effects of such pollution and the practical method . . . of preventing and correcting such pollution and of maintaining such waters in such condition as to prevent damage to public health and public welfare."[139] "The State Board of Health shall have the power and authority to order an abatement of any condition or practice done in violation of any of the provisions of this act, by any municipal corporation, person, partnership, firm or corporation."[140]

Another stream pollution act of 1935, which was to be construed as not "repealing any existing law or any of the provisions of any existing law . . . but . . . as ancillary and supplementary. . . ."[141] and which included all waters in the state such as "lakes, rivers, streams, drainage and roadside ditches and any and all other water-courses within the jurisdiction" of the state[142] was more explicit as to the prevention of damage of fish life.[143] While this act was more detailed, though it reproduced sections of the act quoted above, as to matters prohibited and as to procedures, and as to preventive[144] as well as remedial action, it is subject to question on the ground of what agency the powers granted in it are vested. Throughout the act it is the Department of Commerce and Industry which is to have "jurisdiction to control and prevent pollution of waters," "to determine what qualities and properties of water shall indicate a polluted condition," to notify anyone "violating or about to

violate" the act and to order him to cease; and to approve plans for the abatement or correction of the conditions, etc. The Department of Commerce and Industry had been created by the State Executive-Administrative Act of 1933[145] and the governor had been empowered to assign duties and functions.[146] In accord with this act he placed the state board of health in the Department of Commerce and Industry.[147] The legislature of 1941 repealed the act of 1933,[148] but the supreme court declared the 1941 reorganization act unconstitutional in its entirety.[149] Whether or not the board of health gets off in possession of the powers of the stream pollutions act of 1935 which had been vested in the Department of Commerce and Industry is a question which happily will not need definitive exploration at this point since the board may find sufficient power in the stream pollution act of 1927.[150]

The Ohio River Valley Compact

The state board of health has seemed to be concerned that the standards for industrial wastes and sewage from the munitions plants complied with those in the Ohio River Valley Water Sanitation Compact. In its correspondence with the company it did refer to its duties under the stream pollution act but the emphasis was on the standards of the compact.[151]

A brief reference to the status of the compact at the time the pollution problem was under consideration may be relevant at this point. The Indiana legislature had ratified it in 1939; the states which were parties to the negotiations were Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Tennessee, and West Virginia. But the compact had not become effective because of the failure of Pennsylvania and Tennessee to ratify it.[152] The relevant sections concerning sewage and industrial wastes and which are quoted in the state board of health correspondence are:[152a]

> All sewage from municipalities or other political subdivisions, public or private institutions, or corporations, discharged or permitted to flow into these portions of the Ohio river and its tributary waters which form boundaries between, or are contiguous to, two or more signatory states, or which flow from one signatory state into another signatory state, shall be so treated, within a time reasonable for the construction of the necessary works, as to provide for substantially complete removal of settleable solids, and the removal of not less than forty-five per cent (45%) of the total suspended solids: Provided, That in order to protect the public health or to preserve the waters for other legitimate purposes, including those specified in Article I, in specific instances such higher degree of treatment shall be used as may be determined to be necessary by the commission after investigation, due notice and hearing.
>
> All industrial wastes discharged or permitted to flow into the afore-

> said waters shall be modified or treated, within a time reasonable for the construction of the necessary works, in order to protect the public health or to preserve the waters for other legitimate purposes, including those specified in Article I, to such degree as may be determined to be necessary by the commission after investigation, due notice and hearing.

The whole problem of the discharge of wastes and sewage in the Ohio River is complicated by the fact that Louisville and New Albany use the river as the source of their respective water supplies. The powder plant wastes and sewage were collected in open ditches from which the effluent traveled through the Lick Run and Jenny Lind Run. The latter ditch through which most of the waste moves for a distance of between three and four miles before entering the river is much below the former ditch. It empties into the river at a point about eleven miles above the intake of the Louisville water supply.

In the correspondence and the conferences between the Chief Engineer of the Bureau of Sanitary Engineering of the Indiana State Board of Health and his associates, on the one hand, and the Chemical Engineer of the Industrial Engineering Division of the E. I. du Pont de Nemours Company, and his associates on the other, there was a full exchange of opinion and agreement with regard to the manner of treatment and discharge of both the industrial waste and sewage from the plant. Consequently, so far as the evidence available indicates, there was no disposition on the part of any one to raise a question as to the legal power of the state board; the only questions raised concerned the extent of pollution and the measures practicable for reducing it.

Wastes Wastes from a smokeless powder plant constituted a new problem in stream pollution with which neither the state board of health nor du Pont had had much previous experience. Some experimental tests were made in which it was attempted to reproduce the anticipated conditions, but the tests were somewhat inconclusive. Under the circumstances all that could be done was to agree to watch the reaction of the river to the discharges. This could be done satisfactorily as the plant consisted of several independent units which were completed and placed in operation one at a time.

Cooperative Action The extent and type of cooperation between the state sanitary engineers and du Pont engineers has been implicit in the above discussion, but there was consultation and advice of a much wider nature as well. For example, the Chief Sanitary Engineer of the Indiana State Board of Health called a meeting for July 22, 1940, which was held in the office of the State Sanitary

Engineer of Kentucky to consider the disposal of the wastes and sewage from the powder plant. The Superintendent of Filteration of the New Albany, Indiana Water Works and several men from the United States Public Health Service also attended this meeting. The Senior Sanitary Engineer of the United States Public Health Service presented a memorandum on the subject. At a subsequent meeting on the plant-site even more persons were present and more interests were represented. It was at this meeting that plans were agreed on for neutralization of plant wastes. At other times correspondence took place between sanitary engineers in Indiana and Kentucky, and conferences were had with United States Army engineers, United States Geological engineers, and United States Public Health Service engineers.

The state board also had power over the construction of sewer systems and disposal plants in the munitions factories if the plant is owned and operated by the du Pont company; if it is owned by the United States, then the state board could only act by permission of the federal government. Its control likewise extended to (1) systems for the supply of drinking water, and (2) plumbing installations in the powder and bag loading plants. Plans were submitted for its approval before the systems were installed, and the plans cannot be changed without the approval of the board. The statute which Horack considers the authorization for state board approval of sewer and disposal plans reads as follows:[153]

> Whenever the common council, board of health of any city or town, or the board of county commissioners of any county, or the trustee of any township, in this state, shall make complaint in writing to the state board of health, charging that any city, town, village, corporation, person or firm named in said complaint is discharging, or is permitting to be discharged, any sewage or other wastes or befouling or deleterious matter into any stream, water-course, river, spring, lake, or pond, and is thereby materially injuring, for domestic use, the character of the water into which the same is discharged, to the injury of public health or comfort, or is polluting the source of any public water supply, it shall be the duty of the state board of health to forthwith inquire into and investigate the conditions complained of, and if, upon such investigation, said board shall find the charges, or any of them, made in such complaint to be true and that the conditions produced by the acts complained of are detrimental to public health or comfort, or to the comfort and health of persons residing in the vicinity of the water so befouled, it shall notify the persons, municipality, corporation or firm causing the pollution of the board's finding, and in the notice, shall fix a time for hearing. After such hearing, if the state board of health shall determine that the person, municipality, corporation, or firm, should cease doing the acts complained of, it shall enter an order to that effect against the

offender, and shall, at the same time suggest such improvements or changes in the offender's works, plant or property, if any said board knows of, as will render the noxious matter so being passed into the water innocuous and harmless and shall require, by its order, that the offender to adopt and apply the board's recommendations in that behalf before the offender shall again resume such use of the water; and such board shall, in its order requiring the offender to discontinue the use of water, give to such offender a reasonable time to adopt, construct and put in use the appliances so recommended by the board, and such order shall in each case indicate as a part thereof the time given to such offender: Provided, however, That in the event said board of health find that any offender is polluting the source of any water supply, the order of said board of health against such offender shall take effect immediately.

An authorization which seems to be even more direct provides that "the state board of health shall have . . . power . . . to regulate and prescribe the character and location of . . . [the] disposal of sewage. . . ."[154] The relevant rules which the board has promulgated are:[155]

Whenever investigation by the Indiana state board of health shall show that the discharge of untreated or insufficiently treated sewage or industrial waste into a water-course or stream does produce conditions prejudicial to the public health, the person, firm, corporation or the municipality discharging or permitting to be discharged any such untreated or insufficiently treated sewage or industrial waste into a water-course or stream shall, upon receipt of an official order from the Indiana state board of health, immediately proceed with the construction of such works, or take such other steps as may be necessary to abate the conditions prejudicial to public health.

Provided, however, That before any such official order shall be issued, a hearing shall be given, at a regular or special meeting of the Indiana state board of health, to the said person, persons, firm, corporation, or municipality.

. . . . . .

1. No city, town, county, public institution, firm, corporation, or officer or employee thereof, or other person, shall install or contract for the construction of any sewers, sewage treatment works, or other sewerage facilities, designed to collect, convey, treat, or otherwise dispose of any water carried or liquid waste either of domestic or industrial origin, or make any material change in any such existing sewerage facilities or sewage treatment or disposal works, until plans and specifications, together with an engineering report supporting in detail the design set forth in such plans, shall have been submitted to and have been approved by the state board of health, so far as relates to their sanitary features.

2. After such plans and specifications have been approved by the state board of health, no material changes in the plans, construction, or operation of any such system may be made without first submitting to said board a detailed statement of such proposed changes or additions

and receiving its approval.

3. Said plans, specifications, reports and other information shall be submitted of such form and content as may from time to time be hereafter specified by the state health commissioner.

4. Whenever information regarding any works under construction or any already existing sewers, sewage treatment works or other sewerage facilities, or regarding the operation and maintenance thereof, may be required by the state board of health or state health commissioner, the public officials, or person, firm or corporation having the works in charge shall promptly furnish such information.

5. All such plans hereafter to be sumbitted to the state board of health for its approval, shall have been prepared by or under the supervision of a legally registered professional engineer and bear his official seal.

6. Provided, That nothing contained in this rule shall apply to sewerage or treatment works installed or to be installed in connection with a private dwelling or residence.

Wastes

While the agreement had been made originally to let the industrial wastes flow into the Ohio River via open ditches without additional purification except possibly to provide for some means of insuring the rapid mixture of the wastes with the river, this plan did not take into account events in Europe. As the war clouds thickened, the war department began to step up the capacity of the plant. It was then decided to provide for neutralization settling pools for the industrial wastes.[156] Acid neutralization did cost the powder plant almost $1,000 per day.[157] At the time of this writing studies are in process to ascertain if it is necessary to neutralize the wastes so completely.

Regardless of the ownership of the plant, whether it was vested in the federal government or in a private company, there has been a willingness among all parties concerned to cooperate. Representatives of the state board of health studied the plans and approved them at the plant-site.

Result of Treatment of Waste

Rumor has it that the du Pont engineers were able to devise ways of reclaiming practically all of the alcohol. At least state board of health analyses of the river water fail to show deleterious effects of alcohol. There was complaint at one time of offensive odors and tastes. However, tests of water taken both above and below the point where the industrial wastes entered the river showed the same results. Consequently the state board of health appears to be content with the handling of the industrial wastes. Apparently the public is also satisfied if one may credit comment in the community. Followers of Isaac Walton were aghast at the possibilities for the destruction of fish but later found

it a boon. Local residents insist that the waters flowing from the plant are warmer than the river and that the fish congregate around the place where this water enters the river—and so do the fishermen.

Domestic Sewage There is little, if any waste disposal from the bag loading plant, but both plants have a great deal of domestic sewage. The powder plant has primary sedimentation, sludge digestion, and sludge beds; while the bag loading plant has primary sedimentation, high rate filter, mechanical activated sludge and sludge digester, sludge bed, sludge storage, and chlorination of liquids flowing away from the disposal plant.[158] This is complete disposal.

Water Supply The legal authority of the state board of health to require that pure water be supplied for drinking purposes and the prior approval of construction plans stem from (1) the act of 1909 which provides that "the state board of health shall . . . have power . . . to regulate and prescribe the character and location . . . of water supplies . . ."[158a] and (2) an act of 1913, providing that on complaint from the proper officers or even of citizens "equal to five per cent of the electors" that the water supply of a city or town is dangerous to health, it is the duty of the state board of health to investigate, and if the water is found to be impure and dangerous to health, then after going through the prescribed procedure, including a hearing, the board is to recommend changes necessary to remedy the impurity, "which changes shall be made within a reasonable time."[158b] Other statutes may be supplemental to the ones cited above.[158c]

The rule of the board provides for action on the complaint of an officer or citizen or "as directed by the State Health Commissioner."[159] And the rule also widens the jurisdiction of the board beyond cities and towns by providing that: "Any water which is supplied to the public, or is used or available for drinking in any resort, camp, hotel, or place of temporary abode, public institution, public building, place of employment or place frequented by the public . . ." shall meet certain standards. The rule then sets forth the standards. The standards for purity, in addition to general provisions that the source is to be safe, the water is to be adequately purified and of such chemical content as not to be deleterious, are to conform to those set by the United States Public Health Service.[160] Water systems are subject to the same type of rule as to prescribing approval of plans.[161] An act of 1919, provides that:[162]

> Any person, firm, or corporation offering for sale, for public consumption, any drinking water, bottled water, or mineral water, shall, once each year, on or before the first day of July, submit to the water and

> sewage laboratories of the Indiana state board of health, samples of such drinking water, bottled water, or mineral water, natural or treated, for analysis, to determine its potability and availability for the purpose for which it is intended.

The laboratory of the Bureau of Sanitary Engineering, on the request of any health officer or of other persons makes these tests. The analysis is to be made in conformity with the "Standard Methods of Water Analysis" of the American Public Health Association, in so far as such methods are provided. A rule of the state board requires weekly reports on the operation of water treatment plants;[163a] and samples are examined about every two weeks.

Plant Water Supply The water system in the powder plant is the largest ground water supply in the state. Seven radial wells in the flood plain of the Ohio River provide 36,000 gallons per minute. The supply of drinking water which is chlorinated comes from a separate piping system. Daily bacteriological control of the water supply is exercised by the plant.[164] There are no reports available as to the number of such semi-public water supplies which the state board of health tests for the whole Charlestown area, but the reports for the state for the last eight years indicate this testing is carried on actively.[165]

Year	Number of samples	Year	Number of samples
1933-34	1,811	1937-38	4,611
1934-35	2,419	1938-39	4,743
1935-36	4,828	1939-40	4,750
1936-37	4,874	1940-41	3,186

Plumbing The legal authority for the control of plumbing is found in an act of 1923, and the rules of the Administrative Building Council of Indiana.[166] This council is composed of an administrative committee and an advisory committee. The administrative committee includes as ex-officio members, (1) the chairman of the industrial board; (2) secretary of the state board of health, who is now chairman of the council, and (3) the state fire marshal. The advisory committee of twelve members is appointed by the administrative committee, with the approval of the governor. The advisory committee must include three of each of the following: engineers, architects, contractors, and buiding mechanics.[167] The rule-making and enforcing power is vested in the administrative committee. It is its duty to administer, execute and enforce all laws relative to the construction, repair, or maintenance of places of employment and public buildings, tenement buildings, and all other buidings, except: (1) private residences, and outbuildings in connection therewith.

The committee also is authorized to ascertain, fix and order such reasonable standards, rules, regulations, classifications, approval of plans and specifications of places of employment and public buildings, and other buildings as shall be necessary to carry out the purpose of the act. The administrative committee may also enforce and administer all laws and make all lawful orders requiring such places to be safe and sanitary.[168] Owners, architects and contractors are required to observe the regulations of the committee.

It would seem that this statute unlike the statutes regarding sewers, sewage disposal, and water supply contemplates that plans will be submitted for approval.[169] Extensive rules were promulgated in 1925, and they have been revised several times since. A new revision was undertaken in 1941.[170] The committee received the assistance of a large number of persons with wide practical experience in this field, as well as the advice of the advisory committee as is provided by law. Hearings were held on the proposed rules. However, at the time of this writing the council has decided to suspend publication of the revised rules because materials are not available.

Although the administrative committee is specifically enjoined by statute to enforce the act and rules, the bureau of sanitary engineering actually administers the plumbing code, and this practice has been approved by the attorney-general,[171] since the act does not empower the committee to employ agents or assistants nor is there any appropriation made to it.

The administration of sanitary regulations in the powder plant and bag loading plants was carried on so far as the available evidence indicates chiefly by engineers from the State Bureau of Sanitary Engineering. No local health officer in the area, county or from the neighboring cities had any part in this work. Sanitarians from the district health office, however, did assist in the performance of some of these services.

Sanitation In Area Sanitation services in the immediate Charlestown area outside of the munitions plants, will be examined next.

Between October 17 and October 25, 1940, a survey was made of two areas, one within a twenty-five mile radius from Charlestown and the other within a ten mile radius. The portion of the areas lying in Kentucky was not included. The more intensive survey of the smaller area was made under the direction of an assistant engineer of the bureau of sanitary engineering of the state board of health, with the assistance of the director and two sanitarians from department No. 3 in which Charlestown is located, and an assistant engineer and two sanitarians from department No. 4. Harrison,

Floyd, Washington, Clark, and Scott Counties comprise District No. 3. Department No. 4 is composed of Jefferson, Ripley, Dearborn, Switzerland, and Ohio Counties.

The survey indicated that the water supply in the whole rural region was unsatisfactory. The terrain though high and practically all above flood stage is underlaid with limestone which makes it very difficult to provide safe water for drinking purposes. In the rural homes which either were accommodating or were desirous of accommodating roomers "none of the private water supplies were of satisfactory sanitary construction."[172] Many of them were located very close to privies, barn lots, septic tanks, and other possible sources of contamination. All of these supplies were dug wells, springs, or cisterns. Half of these homes inspected had insanitary privies. "The majority of them were only partially screened and a few of them were entirely without screening." This report recommended that the housing of construction workers in rural dwellings be discontinued. The incidence of a filth-borne disease, typhoid fever, in the region was high, two and one-half times that in the state as a whole, and this estimate should probably be regarded as low. Activities to improve these conditions were carried on, despite the recommendations to discontinue housing workers in the rural area. Some of these activities were incidental to other services and will be touched on when these services are examined, such as milk inspection and general education. There are legal bars to the state board of health exercising power with regard to sewage, water supply or plumbing in private homes. The administrative building council act was amended in 1935 to except explicitly from the jurisdiction of the administrative committee "private residences, and outbuildings in connection therewith, including barns and private garages; [and] buildings used for agricultural purposes, which are not within the corporate limits of a city or town." Nor does the board seem to derive any such power from the stream pollution act.[173] However, an act of 1917 does give the state board power which might have been used to force vacation or repair of private residences which have water or other conditions which are dangerous to health.[174] This act contemplates that action may be taken with regard to places outside of the corporate limits of any town or city, since it refers to the action being taken by "the health commissioner of any county," and that "the prosecuting attorney in cases arising outside cities and towns . . . shall attend to all proceedings on the part of the board of commissioners."[175] There is a provision for an appeal from the administrative order to the circuit or superior court of the

county, the duty of which it is then "to hear the same at the first convenient day, and to make such order in the premises as right and justice may require, and such decision shall be final."

As to whether the sanitary conditions in the environs of Charlestown did actually constitute the nuisance contemplated by the act and which it granted the power to remedy, material evidence would be the fact that in this region the incidence of typhoid fever was two and one-half times that of the rest of the state, and that water and toilet conditions were unsafe according to generally accepted standards, and that many of the homes were either unscreened or only partly screened. A single insanitary privy may endanger the lives of hundreds of people if it is located in a region where there is congestion.

It would seem, therefore, in view of the insanitary conditions, the increased opportunity for infection, and the pressure on the state and its agencies to maintain a clean, wholesome, and healthful community in which workers had their homes, that the power of the state board to discharge such responsibilities would receive liberal consideration by the courts.

Rural Housing Conditions

However, the board followed its policy of using education and voluntary cooperation whenever, and as much as, possible, and to depend on legal compulsion as little as possible. The men who made the health survey were adhering to this policy when they recommended that the housing of defense workers in rural homes be discontinued.

Privies

On December 6, 1933 a community sanitation program had been inaugurated to serve the health needs of communities.[176] "The activities of the community sanitation program are confined entirely to the elimination of insanitary open surface and pit privies, and the construction of sanitary earth pit privies with concrete slab and riser, in accordance with the latest recommendations of the [United States] Public Health Service." The administrative organization as originally set up consisted of the director, the state health officer, who was designated a field agent of the United States Public Health Service, and an assistant, and ten district supervisors, all furnished by the United States Public Health Service. The district supervisor directed the activities in the eighty-nine counties carrying on sanitation projects. By the time of the coming of the munitions industries to Charlestown the organization had been changed somewhat, having been transferred to the bureau of sanitary engineering of the state board of health in accord with a plan recommended by the United States Health Service.[177] The Works Progress Administration fur-

nishes the labor to build the privies; lumber dealers provide the materials which are paid for by the person who wishes to have a privy installed on his property. The price of the material includes delivery of the privy at the place of installation. Five large shops are maintained in the state in which the crews of W.P.A. labor do the construction work. One of those is in the Charlestown area, at New Albany.[178] During a period of approximately eighteen months one hundred and thirty-four sanitary privies were installed. So far as this community sanitation program is administered by health officials, it is carried on by the state board of health directly, and in Clark County the health direction for the program has been exercised entirely by the state board.

In addition to the actual installation of privies, an educational program aimed to stimulate public acceptance of the program has been carried on. Films were exhibited at numerous meetings, and considerable publicity was given to the program by the newspapers. The state board seems to feel that the program has assisted in reducing the incidence of filth-borne disease.[179]

Farm Security Administration The Farm Security Administration has also assisted in the realization of the program of sanitation. This agency has been favorably disposed towards the inclusion of sanitation as a proper subject for advancing money in its lending program. It has encouraged its clients to install effective screens and to construct safe water supply systems.[180]

Mosquitoes When the October health survey was made in 1940, no mosquito larvae were found, but since the state board of health had found anopheles mosquitoes in "practically all sections of the state," it was thought the failure to find larvae might have been "due to the extreme dry weather, the low stage of the Ohio River, and the season of the year." Many possible breeding places were found in the area; it was thought that many persons with malaria might have come into the community, since there were numerous workers from the deep south. Another mosquito survey was undertaken under the direction of the United States Public Health Service, and in cooperation with the W.P.A., some abatement work of draining stagnant waters and spraying ponds was carried on.

Water Charlestown received assistance from the Public Works Administration in building a water supply system which was completed and put in operation in the fall of 1937.[181] It consisted of a ten inch well, sunk into the sands of the Ohio River bank with means for post-chlorination, an elevated tank, and a distribution system.

The cost was approximately $72,000. The Town of Charlestown sold four per cent bonds to the amount of $45,000 to pay its share of the cost of construction. A special election on February 11, 1936, resulted in a vote of 378 in favor of the project, and 14 votes against construction of the system.[182] Since that time the annual reports of the board of health have listed the Charlestown water supply as satisfactory. It should perhaps be added that when the chlorinator has failed to function so much dependence has been placed upon the purifying media of forty to fifty feet of gravel through which the water passed before entering the well that it was considered safe to send the chorinator away for repairs. Tests indicated that the water was safe, however, there was an outside chance that the river might rise and overflow the pumping station, or a muskrat burrow deeply into the bank adjacent to the well. At one time there was danger of the water becoming unsafe because of back siphonage when the Charlestown water system was being used as a source of supply by the powder plant. As long as a field representative of the state defense council spent much of his time in Charlestown, the town had an accurate record of the number of new users of water. Eight months after he left no one seemed to know for certain just how many users there were in the town. The town clerk thought the records in his payment book were practically complete. If persons who do not understand the health significance of what they are doing may tap the water mains, a source of contamination from back siphonage and other leakage may be present. The necessity for carefully guarding connections with a public water supply when another supply leads into the same system is the occasion for lengthy rules by the state board. The Chicago epidemic of amoebic dysentery in 1933 was traced "to defective plumbing involving cross-connections between water and sewage pipes, and through leakage from a defective over head sewer into a drinking tank.[182a] Back siphonage may occur at any time the pressure is low in the water pipes, e.g., a rapid drawing off of water in the basement may reduce the pressure or even produce a vacuum in the water pipes on the upper floors so that if the outlet from the water pipe is below the water line of discharged water such as a toilet stool, used water may be drawn back into the system.[183]

The contemplated federal housing project has led to the formulation of plans to increase the present capacity of 150 gallons per minute to 500 gallons to provide adequate protection for emergencies.

A rule of the state board required that "all purification or treatment works producing water . . . for drinking purposes for the

public, shall be properly and efficiently operated under the supervision of a competent operator . . ." and that weekly reports as to the operation of the plant are to be submitted in the forms provided by the state board of health.[184] The examination of samples of water is also carefully provided for in rules which detail the procedures to be followed. Laboratory testing of water samples in accord with the above rules had been carried on with care for Charlestown even before the advent of the munitions plants. For the year July 1, 1939-June 30, 1940, the laboratory records of the state board of health show 49 samples were tested. For the next year 47 samples, and for the first 16 weeks of the calendar year, 1942, there were 16 samples tested. This is a more strict sampling program than is used in the state generally.

Private Water Supplies It may be concluded that previous to the coming of the munitions industries the water supply for Charlestown was adequate and safe, barring accidental contamination from back siphonage and during the periods when the chlorinator was not in operation. While it is now adequate for normal use; and if projected plans for enlargement materialize, it will be sufficient for all occasions.

The only unsatisfactory feature of the water situation is the failure of more people to use city water. A survey made of Charlestown in March 1941 divulged that approximately 17 per cent of the homes did not use city water, but depended upon wells and cisterns. This did not necessarily mean that this supply was all insanitary, but it did mean that the probability of an insanitary condition was high. It may be suggested that the ratio of city water users has probably increased slightly during the year following March 1941. There were 315 permanent homes in Charlestown at that time, according to district health department figures, and it was estimated by the town clerk, in April of 1942, that there were 300 users of city water. However, during that year there was a great deal of new building, practically all of which was connected with the water mains. The poorer sections on South Main and South Water Streets did not and still do not use city water.

Plumbing In Homes Although the state board of health has not authority to prescribe plumbing regulations for private residences, an arrangement has been made with the Federal Housing Administration whereby plumbing installations in F. H. A. financed homes must meet state board minimum standards before being approved by the housing administration.

The state board of health has published a bulletin embodying specifications for the construction of private plumbing installations, and offers the services of a sanitary engineer to persons wishing advice on installations. A great deal of this kind of service has been carried on in Charlestown, and in the new buildings going up just outside of the corporate limits. The work of inspection carried on in Charlestown has been done largely by sanitarians of the district health department.

The problem of the disposal of domestic sewage in Charlestown at the beginning of the munitions boom was a difficult one. Although a sanitary sewer system and a disposal plant had been planned, and were in process of construction, they were not opened for use until March, 1941, and then slowly as the sewer system was extended and connections could be made with it.

A temporary arrangement for public use was the installation of three sanitary privies, two in alleys, and one in the street, which served for a time. After the schools had closed in the spring of 1941, the rest rooms in the school building were opened to the public. Subsequently, when the stores and restaurants had installed their sewer connections and indoor toilets, the school rest rooms were closed to the public. This occurred late in the summer of 1941.

Sewers Plans were perfected for the installation of a sanitary sewer system and sewage treatment plant more than a year before the coming of the munitions industry, and at an election on April 4, 1939, were approved by a vote of 273 to 121. One ordinance authorized a bond issue of $6,500 to pay the town's share of the sewer system, while another authorized an issue of $10,500 to pay the town's share of the construction of a sewage treatment works.[185] An ordinance appropriating the money to begin construction, and accepting the offer of the Works Progress Administration to furnish the labor and a portion of the materials in the amount of approximately $75,000, for a general sewage system was passed by the board of trustees on May 29, 1939.[186] It is impossible to give an exact figure for the cost of the sewerage system because of the various plans made and abandoned from time to time, and the extensions and new plants which the growth of the municipality made necessary. The cost of the system as listed in the 1940 annual report is $85,000; while the figures given the next year are $110,000. For example, the plans as originally conceived called for a complete sewage treatment plant, but instead, an Imhoff tank and a sprinkling revolver distributor were used. The sludge bed and final settler were not completed. The operator reports that when the tank begins to fill with sludge, he

watches for a freshet and then opens the valve and discharges sludge into a little ditch. His opinion is that under such circumstances the dilution is so great that there is not much danger, but he hopes that eventually plant additions can be made. Some critics of the town officials have alleged that if the plant was not finished the town officials hoped the town would subsequently receive a federal or state subsidy to complete it. The state board of health made the following recommendation which may have been thought to support this charge.

> Since some expansion in Charlestown is inevitable, there must be an extension of water and sewerage facilities. Since Charlestown is unable to raise additional money it is recommended that money for this work be made available. It is impossible to arrive at an intelligent estimate of the cost of these health facilities until policies on housing developments have been established. However, it is probable that $200,000.00 to $250,000.00 will be required for proper expansion of these facilities. Immediate action should be taken regarding this problem as it is the most serious existing public health hazard.

The system as originally planned was designed to care for the needs of a population of 1500. Before the system was put into operation there were considerably more than that number of people in the town. The plan is now to put in another system to serve the new additions which are being added in the new housing projects.

Most of the private household and business sewer connections were made during the construction of the main sewer system. They were therefore put in satisfactorily, first, because competent persons were superintending the construction of the main sewer, and second, because there was a trained engineer present to enforce the ordinance. The engineer, who was an agent of the clerk of the town, was also the local representative of the state defense council. The ordinance provided that no person might make a connection with the municipal sewer without a permit to tap it, and prescribed the conditions for notice of completion and inspection.[187]

However, it is reported by one of the sanitarians from the district health department that since the departure of the representative of the state defense council some connections have been made in an unsatisfactory manner. According to his testimony, a person wishing to attach his plumbing system to the sewer will dig a trench; if a stone is struck, a detour will be made around it or over it. The resulting bulge or hump, while not a particularly dangerous health hazard, is a source of expense to the property holder, because there is likely to be a clogged sewer at any time, especially if it is not used for a day or two. The opinion of the sanitarian that there is little

or no systematic inspection of connections of the municipal sewer is borne out by the finding that at one time the town clerk was unaware of the ordinance requiring inspection. Neither does that officer have an accurate record of the number of connections with it. This illustrates one of the difficulties which small towns have in administering their ordinances. They cannot afford to have an administrative official whose full time is devoted to administering their affairs. They place the responsibility upon some public spirited citizen who in most cases has to earn a living in his own private business. Twenty dollars a year is scarcely an inducement of sufficient attractiveness to insure the type of work that is really needed.

Trailer Camps One of the most pressing health problems in the Charlestown area concerned the sanitary control of trailer camps in this area, a problem which "has been unprecedented in the history of Indiana and has thereby demanded much attention."[188]

There had been an economic deterioration in the community partially reflected by the decline in the wheat shipments from the Charlestown elevator, the decline in the number of telephones in use in the community, and by the failure of the town to substantially increase in population at a time when other suburban places in the United States were attracting population which was moving out from larger centers like Jeffersonville, New Albany and Louisville. This static economic condition of the community was also reflected in housing with the construction of dwellings apparently ceasing many years ago. Maintenance of existing structures seems also to have been at a low ebb.

The site of the powder plant was chosen because of the availability of an abundance of water in the Ohio River, and a native labor supply which could be drawn from the marginal farming land of the neighboring Indiana counties. But hardly had construction been started before military events in Europe called for a doubling and then a tripling of the capacity of the powder plant. The army calculation which originally solved the housing problem by establishing a plant of such size as to use only the surplus labor within driving distance was upset by the enlargement of the powder plant and the location of a powder bag loading plant nearby. The bag loading plant would require nearly as many laborers as the powder plant. The housing problem became acute when, in addition to these two factors, the other nearby cities and towns became the centers of other defense activities.

The location of the plants, their gates, the river, and the highways, made Charlestown a focal point in a great area of defense

activity. There were no empty dwellings and there were only 315 permanent homes in the town. The second and third stories of business buildings were opened for sleeping rooms, cars were driven out of garages and workers moved in, workers crowded the hens out of the chicken houses, and they set up beds in basements and still there was not enough room.

Trailers seemed to be the answer, and one felt there were innumerable trailers in Charlestown; big luxurious palace-like trailers, poor little make-shift trailers, plain ordinary trailers, but trailers everywhere. When the October 1940 survey was made there were nine trailer camps listed within the corporate limits, and by March, 1941 when the nursing survey was made there were supposed to be twenty-three camps, but regardless of the number of camps this survey found that there were 536 trailers within the city limits. The members of the survey visited 142 of them and found 431 persons were occupying them, or an average of 3.78 persons per trailer. There were numerous other trailer camps outside of the corporate limits, some of them so close as to be able to use the municipal water and sewer systems.

The power of the state board of health over these camps is derived in the first instance from the 1935 tourist camp law. The word "trailer" is not to be found in the act but the definition of tourist camps in section one is sufficiently broad to include trailer camps.[189] The penalty for operating a camp without first obtaining a license or for continuing to operate after it had been revoked is a fine not to exceed $300.00, or jail sentence not to exceed 90 days. A person wishing to obtain a license is required by the statute to apply in writing to the state board of health on a form prepared by it setting forth location, size, proposed water supply, sewage and garbage disposal and "such other information as may be required by the state board of health." Before the issuance of a license, the board is required to have the site inspected.

Other relevant sections of the act confer duties on camp operators and campers with regard to the handling and disposal of garbage, reporting illnesses in the camp, and posting of the rules of the state board of health. One interesting clause empowers the "owner or keeper of any tourist camp" to "eject any person from the premises [among other acts] . . . for violation of any regulations of the state board of health. . . ."[190]

Pursuant to the rule making power conferred on the state board of health by the act, the board formulated regulations on July 20, 1938, defining a camp and prescribing conditions to be observed by it.[191] The regulations are very detailed.

The act and the regulations were drawn up presumably for control of health in the roadside tourist camp which caters to overnight transients. The situation in Charlestown, where the trailer camp became a residence for the duration of the housing emergency, presented different problems. If a trailer were parked too close to another in an overnight camp the hazard would not be serious, but in Charlestown where space was at a premium, the temptation was to park the trailers in closely as a relatively permanent practice, creating fire hazards, leaving no room either for children to play, or for their mothers to dry clothes. Inspections of the transient camp by health authorities could be made occasionally; but in Charlestown where the pressure for space was so terrific, inspection had to be carried on continuously. When so many people with so widely differing camp habits were so closely jammed together for such periods of time, it seemed there was a kind of progressive degeneracy in camping habits; once a hazardous practice was not quickly checked everybody was engaging in it. Inspection from time to time in normal situations would tend to educate the camp operator to the health significance of the regulations, whereas in Charlestown, persons with no previous camp experience were opening and operating large camps without the education acquired in normal circumstances by the gradual building up of a tourist business over a period of several seasons.

Neither the 1935 tourist camp act nor Rule S. E. 18 applied sufficiently in detail to the Charlestown trailer camp problem. Consequently, after six months of experience with trailer control for health purposes the state board issued an "Interpretation of Rule S. E. 18 As It Shall Apply in the Regulations of House Trailer Camps in Areas in the Vicinity of National Defense Activities."[192] The "interpretation" recited that "living or sleeping in a house trailer is generally accepted and shall be considered as camping." Again, to meet the situation: "The fact that there is only one house trailer camped or parked upon the premises and that the premises are otherwise used only as a private residence or for other purposes shall not alter this interpretation of the definition. The phrase 'house trailer' as used herein shall be interpreted to include trailer, house-car, camp-car, or any other mobile unit which may be used for semi-permanent or temporary living quarters."

Other provisions in the "interpretations" provided for camping grounds to be well drained, artificially if necessary; detailed specifications for cleanliness; the minimum size of lots upon which a trailer or a trailer and a car might be parked; all-weather drive ways to every trailer; posting of rules of owner or operator and of the

state board of health; detailed regulations concerning the water supply, locations, construction, laboratory tests; toilet, lavatory, and shower bath construction, availability and number per sex; sewer and sewage disposal; the sections of Rule S. E. 18 which were not applicable to trailer camps; and the requirement that a "competent attendant shall be on duty at the camp at all times and shall immediately comply with verbal recommendations of representatives of the Indiana state board of health regarding maintenance of sanitary conditions."

Another source of control of trailer camps in Charlestown was an ordinance passed by the board of trustees of Charlestown, May 12, 1941. It had been prepared by the state board of health; and if sections one, two, and three were compared with the opening sentences of the "interpretations" above cited, it would become evident that it was tailored precisely to fit the Charlestown situation. It authorized Charlestown peace officers, state policemen and representatives of the state board of health to enforce it. It is suggested that the chief value of this ordinance to the performance of health services was a psychological one. It tended to line up local officials with state board of health officials, making them feel that they had a stake in the enforcement of health regulations and served to put trailer holders on notice that local opinion was favorable to the work of the health workers. This type of procedure is another example of the policy of the state board to rely on educational and persuasive techniques instead of legal compulsion.

The administration of trailer camp regulations was carried on jointly by the district health department and sanitarians from the state board of health. The relationship of the state to the district officers seemed to be on a senior-junior cooperative basis, rather than on the superior-inferior relationship. This situation appears to be generally true with regard to practically all occasions when some activity is carried on jointly, regardless of the function being performed. For example, the October survey was under the direction of an assistant sanitary engineer from the state board while the director of district health department No. 3, and personnel from a neighboring district were assisting with the field work. However, it is to be noted that very little emphasis should be placed upon superior-subordinate relations in affairs of this kind since it appears that the activity is carried on very largely on a coordinate basis. This is perhaps due to the high professional training and standards of those doing the work and to other conditions such as a clear understanding of the ends being sought, and a high sense of obligation to duty.

At the beginning of the munitions boom the district health department sanitarians began enforcing trailer camp regulations, using their traditional methods of obtaining compliance through educational measures in most instances. The consequence of such a procedure coupled with consultation with contractors who built tourist camps, "had a tendency," according to the report of the board, "to cause the public to look upon the Bureau [of sanitary engineering of the board of health] as an advisory agency rather than an enforcement agency, which is most desirable."[193] This policy, while adhered to in Charlestown, was supplemented by more forceful action. Inspectors were forced to require reasonable compliance with regulations within as short a time as was equitably possible. In most cases compliance was satisfactory as was shown by the survey of March, 1941, when 140 of the 142 trailers visited were found to have city water available; only five of these had insanitary privies; and in only a few cases did owners or operators either refuse or fail to meet the requirements. At the outset it was thought that the proper procedure to secure legal compulsion was to apply to the prosecuting attorney, in accordance with a statute conferring general powers and duties on health officers, directing that "the district prosecutor of the district wherein the offense occurs, upon receiving the information from said health commissioners or health officers, shall institute proceedings in the county for enforcement."[194] In the initial stages of this problem there may have been some difference of opinion between the prosecuting attorney and the health officers as to law enforcement policy. But it seems that as soon as these differences were resolved, if any actually existed, compliance with the regulations became satisfactory. The state board may have had power to act independently if it had wished to do so. The statutes provide that "the state board of health shall have . . . power . . . to bring action in the courts for the enforcement of health laws and health rules."[195] Unless the procedure is equitable in nature, enforcement is often affected by the views of the community which are likely to be reflected in the community, and for this reason health officers are usually hesitant to press local prosecutors too hard in matters such as these.

Not only did the health authorities inspect camp sites and seek to regulate camp owners and operators, but they also dealt directly with campers who parked their trailers in any likely spot along the roadside or by a stream. A systematic campaign to get all trailers into approved trailer camps was carried on. The October, 1941, survey, reported that "all of the trailers in Charlestown and its environs are being *compelled* to move into approved camps so that they will have adequate sanitary facilities at their disposal."[196]

This campaign was carried on relatively successfully and with reasonable care during the fall of 1940, and ensuing winter; but when the warm weather came, the temptation to move to shady places was frequently irresistible, most of the camp sites being without shade. During the ensuing summer the hide-and-seek between campers and sanitarians became almost a game, but by the winter and spring of 1942, the problem decreased in difficulty because the peak of construction and temporary work had passed. The relative absence of trailers in Charlestown in the spring of 1942, made it seem like a deserted village as compared to the spring of 1941. Many new houses were being built, and this has also tended to depopulate the trailer camps.

Restaurants Inspection of restaurants, even in normal times a difficult task, was greatly aggravated by the coming of the munitions industries. Two factors combined to put a load on the eating places disproportionate to the increase of the population. First, many of the workers who lived in trailer camps and in rooms in the vicinity ate their meals at the local restaurants. Second, many of those who resided elsewhere ate some of their meals at the restaurants in Charlestown. Wages were sufficiently high to justify this policy on the part of both groups.

The October survey reported that the restaurants in the community were inadequate, and of low quality, although they had been under the surveillance of the district health department for three years, and it was said that there had been "much improvement." One health officer in the area reported that in an earlier survey only one eating place which could qualify as grade A had been discovered, and it was later closed because of its operation in connection with a gambling establishment.

According to the October survey there were in a ten mile radius of Charlestown thirty-one eating places in operation with a seating capacity of 1,228 persons, and three under construction in Charlestown with a seating capacity of 70, or an expected total of 1,325. According to the report no new place would be permitted to begin business until it could qualify for a rating of grade A, although the authors have failed to see the board of health grade A sign in any one of these places. Also, within Charlestown there were three grade C places with a seating capacity of 200. A cafeteria with an A grade seating 150 had just been opened in the du Pont plant. Later another less attractive type of place was opened. In addition many private homes took in boarders. But during the peak of construction

work in the plants in the late winter and spring of 1941, even standing room was at a premium in the restaurants.

Statutory authority under which the state board of health operates to protect food consumers and to regulate the establishments which handle food is derived from several acts, the chief one being the food establishments act of 1909.[197] The chief substantive section of this act is as follows:[198]

> Every building, room, basement or cellar occupied or used as a bakery, confectionery, cannery, packing-house, slaughter-house, dairy, creamery, cheese factory, restaurant, hotel, grocery, meat market or other place or apartment used for the preparation for sale, manufacture, packing, storage, sale or distribution of any food, shall be properly lighted, drained, plumbed and ventilated and conducted with strict regard to the influence of such condition upon the health of the operatives, employees, clerks or other persons therein employed and the purity and wholesomeness of the food therein produced; and for the purpose of this act the term "food" as used herein shall include all articles used for food, drink, confectionery or condiment, whether simple, mixed, or compound, and all substances or ingredients used in the preparation thereof.

Conditions of cleanliness with regard to handling food are indicated: ". . . for the purpose of this act, unclean, unhealthful or unsanitary conditions shall be deemed to exist if food in the process of manufacture, preparation, packing, storing, sale, distribution or transportation is not securely protected from flies, dust, dirt, and, as far as may be necessary, by all reasonable means, from all other foreign or injurious contamination, and if the refuse, dirt and the waste products subject to decomposition and fermentation incident to the manufacture, preparation, packing, storing, selling, distributing and transporting of food, are not removed daily, and if all trucks, trays, boxes, baskets, buckets, and other receptacles, chutes, platforms, racks, tables, shelves and all knives, saws, cleavers, and other utensils and machinery used in moving, handling, cutting, chopping, mixing, canning and all other processes are not thoroughly cleaned daily, and if the clothing of the operatives, employees, clerks or other persons therein employed is unclean." The act contains references to the interior conditions of buildings; treatment of walls, ceilings, and floors, the requirement for screening doors and windows; the location and conditions of toilet rooms, and cuspidors; prohibition against sleeping in the rooms used in connection with the preparation or sale of food, and the employment of any persons for food handling "who is affected with any venereal disease, smallpox, diphtheria, scarlet fever, yellow fever, tuberculosis, or consumption, bubonic plague, Asiatic cholera, leprosy, trachoma, typhoid fever, epidemic

dysentery, measles, mumps, German measles, whooping cough, chicken pox or any other infectious or contagious disease." Finally the state board of health is required to enforce the act by carrying on inspection and by furnishing evidence of violations "to the prosecuting attorney of the county or circuit wherein such violations occur, who shall prosecute all persons violating any of the provisions of this act. . . ." An alternative to action in the courts was provided. The inspector was to report the violations to the state food and drug commissioner "who shall issue an order to the person or persons in authority at the aforesaid establishment to abate the condition or violation, or to make such improvements as may be necessary to abate them. . . ."[198a]

According to Horack the state board of health has issued more rules pursuant to the chief substantive section of the food establishment act of 1909, than under any other statute.[199] Only those regulations concerning public eating places will be summarized at this point. Two classifications may be suggested to embrace them: (1) general regulations, and (2) regulations with regard to grading public eating places. Under the head of general regulations may be mentioned specifications for the buildings housing eating places, the grounds and surroundings; cleanliness of kitchen and equipment, including detailed directions for (a) washing dishes and other eating utensils, (b) dispensing draught beer, and (c) the disposal of garbage; the requirement that all employees have clean habits and that "all persons engaged in any way in handling, preparing or serving food or drink shall furnish a medical certificate" as evidence of their freedom from any contagious or infectious disease.

A rule was adopted February 23, 1938 that "on and after April 1, 1938, no person, firm or corporation shall open or establish a restaurant in Indiana without first securing a certificate of approval from the Indiana State Board of Health. Said certificate of approval shall not be issued to any new restaurant until the requirements for a Grade 'A' restaurant . . . have been complied with."[200] Provision for annual inspection and a display of the certificate of grade is also made. Very detailed regulations have also been issued covering the physical features of eating rooms and service in an attempt to insure cleanliness. The kitchen and pantry are carefully regulated as to cooking utensils, refrigerators, food handling, and dishwashing—three very detailed paragraphs on dishwashing including authority to require the installation and constant use of dishwashing machines of an approved type.

The rules covering employees require the eating establishment to hold medical certificates which have been issued within twelve months of the date of inspection and which have been given by a reputable physician stating that every "cook, waiter or handler of food" is "free from gonorrhea, syphilis, tuberculosis, typhoid, measles, and any other contagious or infectious disease and is not a disease carrier." Details are set forth as to the outer garments worn—cooks to "wear clean white caps and coats or special dress when on duty," and "waiters to wear clean white or special dress"—and the cleanliness of hands.

No milk may be served which does not comply with standards set by the state board of health in its milk regulations (which will be discussed below) and it must be served in original container, "so that the name of the contents and the name of the producer or distributor may be readily observed by the guests," and if the milk of two grades is used, "for the purpose of scoring and rating the lowest grade of milk only shall be considered."[201] The regulations covering water supply are specific and detailed, unless the water from an approved public water supply is used. Sewerage regulations are likewise specific and detailed, while garbage and refuse disposal and general cleanliness have only two paragraphs devoted to them.

Grading Any public eating place which can measure up to the standards above cited will receive a Grade A certificate. The rules require that those which have been found to have violated certain regulations which the state board of health apparently considers to be of a secondary order of seriousness such as with regards to screens, lighting, ventilation, floors, walls and ceilings, toilets, garbage, refuse and general cleanliness on "two consecutive inspections" shall "be required within twenty-four hours of the second inspection to display a Grade 'B' certificate;" and it is to be displayed "until at least two further inspections show that the violated item or items of sanitation have been complied with, provided further that legal proceedings against said restaurant may be taken by the Indiana state board of health or its authorized representative if the violated items of sanitation are not complied with within a reasonable period of time." However, the state board has abandoned the attempt to enforce the part of the rule requiring the display of lower grade certificates.

The administration of the regulations governing public eating places in the Charlestown area was almost entirely the work of the district health department. It carried on this work actively, particularly at the beginning of the influx of workers. Over seven hundred inspections were made during that year. Administrative

enforcement of regulations governing eating places is seriously handicapped by the lack of active public appreciation of the health significance of cleanliness in public eating places. The failure of the public to pay attention to the grade certificates is a striking example in point. One official reported that he could see no decline in the number of persons eating in a place where he had put up a Grade C certificate. Professional qualifications have not been a necessity in the operation of an eating place. The lack of public support of, or even toleration for, enforcement, coupled with shortages in personnel has resulted in general laxity in the administration of eating place regulations. Another factor is the feeling among inspectors that the legal background is not proper for reasonable enforcement. One inspector said that while he was explaining the necessity for sterilizing eating utensils, the operator of the restaurant picked up a water glass which had just been used by a customer, rinsed it in tepid water, and filled it for another customer.

The economic deterioration of the community had perhaps contributed to the depreciated standards which the public expected of its eating places. There was one experienced inspector detailed to the district health office from the central office who apparently spoke the language of the community, and who during his work there had gained the confidence of the restaurant operators. However, he died in the midst of the boom. Putting a new inspector into his place at a time of unprecedented strain was an unfortunate necessity. The new inspector was faced with a very trying situation while attempting to gain the confidence of those whose cooperation was vital to his success, and who were under a pressure which of itself boded ill for suggestions from any source.

The personality problems involved in administration are sometimes the difference between success and failure. One of the authors called upon a merchant, long a resident of Charlestown, who had been visited shortly before by a tax official. The official had apparently been making a routine checkup, but his manner, language, dress, and stature had exasperated the merchant who described him to the last shoestring with a sulphuric language. He could show—in fact he did go to his safe and produce—his income tax returns and all his bookkeeping records. The author had called at the store within an hour after a representative of the state fire marshal's office had ordered this merchant to tear down a coal shed at the rear of the store, but not a word of reproach was aimed at the fire inspector. This inspector spoke the merchant's language; he worked in his shirt sleeves, and humility sat on his countenance. It was the

tax inspector with greased hair and creased pants who had claimed the balances needed checking, and not the inspector whose order resulted in substantial expense, who came in for his terrible wrath. The problems of personality and background are of the greatest importance in some of these instances.

The policy adopted by the health officials under the circumstances showed a sense of the practicable. Those conditions most dangerous to the health of restaurant patrons were selected in the order of their danger and concentrated on first. "The basic fundamentals of sanitation have been striven toward rather than the less important frills. A safe water supply, adequate facilities for thorough dishwashing to break the chain of contact from one diner to the next, healthy food handlers, and pure food have been considered to be more important than the amount of chrome plating in evidence, as well as other attractive but less important features" is the way an official largely responsible for determining policy summarized the procedure followed.[202]

It is true that restaurants in the area were severely criticized because they looked dirty, and in a very real sense were dirty, because there was mud on the floors. But there were no serious outbreaks of food poisoning or other food-borne disease; that was what counted in the health of the munitions workers and the defense of the country.

It may be suggested for the improvement of public eating place regulations and inspection that certain steps might be taken. The system of degrading is probably not an effective method of enforcing standards in restaurants. A procedure involving the power and the exercise of the power to revoke the licenses of restaurant operators would perhaps be more effective. In actual operation the health administration should continue and probably increase its educational program, not only among operators themselves but with the public generally, but it should also threaten to revoke licenses and in some instances actually revoke them. The statutes should be amended to make it entirely clear that the permission to operate a restaurant is in the nature of a license and that this license is revokable for proper cause. Then licenses of violators could be revoked in order to make it clear that the problem of sanitation in restaurants is important and that the health officers intend to deal with it as important. Licensing sometimes aids the trade group in becoming more professional in its attitudes, and it is precisely this kind of an attitude which seems to be needed in the restaurant field, at least in some portions of the state. The United States Public Health Service has recognized the formative state in which the public eating place sanitation is. It

has begun to develop a short form ordinance and code for the regulation of eating establishments[202a] as it did for milk sanitation. This latter activity will be referred to in the next section.

Milk The importance of milk as a factor in the human diet and the ease with which it becomes contaminated and dangerous make its safe production and sanitary distribution a first line of health defense in every community. The production, transportation, processing, storage, distribution and sale of milk in the state of Indiana have been declared officially to be a business affecting the public health and interest.[203] Because it is the ideal medium for the growth and transportation of disease germs, it must be produced and distributed under conditions almost approaching the cleanliness of a hospital. The problem of producing clean, disease-free, good milk is a particularly difficult one partly because many of the persons involved in the various stages of production and distribution are neither accustomed to high standards of cleanliness nor do they realize the significance of clean and pure milk in the health of the community. At the same time it is of the utmost importance in a pure milk program to permit such deviations from general standards as are necessary from farm to farm, while still adhering to the essentials.

Before proceeding with an examination of the administration of the milk program in the Charlestown area, the legal background of milk control may be summarized briefly. The basic act requiring cleanliness in all dairy products, cheese, ice cream, butter as well as fluid milk is the Food Establishments Act of 1909.[204] Under it Horack has arranged most of the rules of the state board of health with regard to sanitation connected with dairy products. Cold storage management, including the handling of dairy products, is regulated among other matters as to marking of packages, time limits packages may be retained within storage, records of packages kept and the licensing of operators of such plants.[205] There is an act requiring that ice cream mix meet certain standards established by the board of health.[206] Acts which are of importance in the milk field, although they are also used for other dairy products, are: the weights and measures act which requires that products for sale "be so marked as to plainly indicate the net contents in terms of weight, measure, numerical count;"[207] the creamery and tester's license law which requires all persons or corporations that purchase milk or cream on the basis of the amount of butter fat contained therein to use testing apparatus approved by Purdue University,[208] to have a person present who has a tester's license and for the business to have a creamery license both likewise issued by Purdue, and a permit is-

sued by the state board of health;[209] the clean milk can law which requires the cleansing immediately after use of receptacles employed for the transportation of milk and other dairy products and which prohibits carrying "any sweeping refuse, [or] dirt", in them;[210] the milk and cream act of 1913, and its amendments which include some of the prohibitions and requirements referred to above, but in addition it prohibits the sale of milk from herds not tested for tuberculosis and Bang's disease unless the milk is pasteurized, and in it the specifications for pasteurization are also set forth;[211] and the Food, Drug and Cosmetic Act of 1939.[212] The last act mentioned is important because, under it persons selling milk labeled as being of a higher grade than tests indicate it to be can be compelled to relable their milk as of a lower grade.

Attention may be called in passing to the Milk Control Act of 1935,[213] because it is the counterpart of the milk health law. It lays the basis for a producer's program to control the flow of milk to the market, surpluses, and prices; whereas, the milk law and regulations under investigation here lay the basis for a consumer's program to aid him in getting clean milk. Under the provisions of the Milk Control Act, Floyd and Clark Counties were designated as a marketing area; and rules calculated to safeguard the interests of the producer have been adopted.[214]

Federal action in the field of milk sanitation control, which must be referred to at this point because of its influence upon state and local action, took the form of a model ordinance by the United States Public Health Service, published in 1924, which in turn has been supplemented by a model code. Both the ordinance and the code have been revised several times, the one now in use dating from 1939. The Public Health Service has recommended the adoption of these in an abbreviated form, often referred to as the short form ordinance and code, by the states and their local subdivisions.[215] Milk that complies with the standards set forth in this code is rated as Grade A milk. The grade refers to purity and cleanliness rather than to fat content.

The Indiana practice in the administration of milk sanitation, until the summer of 1941, was to adopt in general the United States Public Health Service standards by state statute, to implement them with rules of the state board of health, which were very largely taken from the code, and to enforce the state statute and the rules through inspectors attached to the state board. These inspectors operated out of the Indianapolis office. Enforcement of these standards was shifted to the municipalities in the summer of 1941.[216] The function

of the state board of health then became, (a) the education of localities as to the dietary value of clean milk, (b) the explanation of the legal and administrative procedures to obtain such milk, (c) the training of inspectors to supply the localities which adopted the desired standards.

The procedure followed by the state board of health in its educational program is to contact the local health officer, the mayor and council, and through them, service clubs and particularly women's groups. A survey of the local milk situation is frequently made by the state board. In some communities a medical society is enlisted in the movement. The situation becomes almost ideal when the producers lose a large market because of failure to meet Grade A standards.

In the Charlestown area, the five county seats in the counties comprising District Health Department No. 3 were convinced of the desirability of adopting the ordinance because of the increased market for milk, the proximity of the Louisville milk shed, which had had Grade A milk for sometime, and the long struggle to get clean milk which both New Albany and Jeffersonville had experienced. Grade A ordinances were adopted by Salem, February 14, 1941; Corydon, February 24; Jeffersonville, April 7; Scottsburg, April 28; and New Albany, May 5.[217] This arrangement covered the entire five county area, there being very few producers who would never want to market milk in any of these five cities. For example, in the environs of Charlestown there was only one small producer who was not inspected as a result of the adoption of one of these ordinances. Looking at the matter from the consumer's standpoint, clean milk could be had in every town in the region.

The ordinances adopted were modeled after the Grade A short form ordinance with certain minor changes suited to each locality. The ordinance adopted by Jeffersonville provided that "the production, transportation, processing, handling, grading, sampling, examination, labeling, regrading, and sale of all milk products sold for ultimate consumption within the city of Jeffersonville, or its police jurisdiction, the inspection of dairy herds, dairies, and milk plants, the issuing and revocation of permits to milk producers and distributors . . . and the fixing of penalties shall be regulated in accordance with the terms of the unabridged form of the 1939 edition of the United States Public Service milk ordinance, a certified copy of which shall be on file in the office of the City Clerk-Treasurer; provided, that the blank spaces following the words 'city of' in said unabridged form shall be understood to refer to the city of Jefferson-

ville; provided further that in section 7, items 1r [one r] of said unabridged form the tuberculosis and abortion testing requirement shall comply with the provisions of Chapter 261, Indiana Acts of 1937 and in addition copies of such tests shall be filed with the Health Officer." Certain other sections of the Public Health Service ordinance and code were displayed by sections in the ordinance. These sections provided that no milk might be brought in, sold or stored in the city or its police jurisdiction by any person except those having a permit from the health officer and only those complying with the regulations could receive and retain a permit. It is subject to revocation by the health officer after an opportunity for a hearing.

The method of financing each city's share of the cost of inspection is provided for. Four cents a hundred weight of milk received is charged each milk plant, that is, each processor-distributor; and in case the producer distributes his own milk, he pays one dollar per year per cow. The charge for cream used for market milk purposes is one cent per pound of butter fat. This fee is paid to the clerk-treasurer. Milk may not be sold which is not Grade A unless it carries the label of the lower grade and this may be done for a period not to exceed 30 days "or in emergency such longer period as [the health officer] may deem necessary." Another section exempted any person from the inspection fee to Jeffersonville, if he were paying a like fee to another city.

The office for the administration of this program is provided for in these words:

> There is hereby created the Office of Inspector of Milk and Milk Products, whose duties shall be defined in this ordinance and code as above referred to, such inspector to be appointed by the Mayor of the City of Jeffersonville upon recommendation of the State Board of Health; provided further, that said inspector or inspectors to be under the direct supervision of the Director of District III, Indiana State Board of Health; said inspector or inspectors shall be the authorized representative of the City Health Officer of the City of Jeffersonville.

In order to start the program, the state board of health made contributions to the salaries of inspectors, and $300 to buy a miscroscope for the milk laboratory, but the localities were to pay the full cost of the program as soon as the collections of fees provided an adequate operating fund. The processors send their milk weight sheets along with their fees to the district health department each month. That department computes the cost of the entire program and the share which should be allocated to each city. The checks are sent to each city clerk-treasurer. Also, vouchers for salaries, travel, and other expenses are sent to the city clerk-treasurer, who in turn

sends checks drawn against the milk fund to the inspectors to pay their share of the milk inspection.

One inspector was loaned to the community by the state board of health, and the other, a man trained by Purdue in dairying, was recruited for the position through an examination by the state Personnel Division. Two inspectors have been employed to date, their annual salaries are $2040 and $1680 which is the beginning salary. Allowances for travel and other expenses such as laboratory expenses, are authorized. The total cost of the entire program for the whole district is about $6,000 per year. One inspector covers the processing and distributing plants and the other the producers, in accordance with a program of dividing the work.

About 275 farmers are in the program and the inspector tries to pay them monthly visits, but by watching the reports of the bacterial count, he is able to concentrate upon those producers needing assistance, while going infrequently to those whose counts indicate that all is well. The authors found that there were complaints among farmers whose methods resulted in low bacterial counts that the inspector did not come often enough, because they had questions of information to ask him and their interest in the program was sufficiently keen to make them desire answers.

Enforcement rests primarily upon local public opinion, since the state makes no attempt to police fluid milk supply. The state board of health may obtain prosecution for misbranding if the Grade A label were used when the standards were not met. This, along with the training of the inspectors, makes for uniformity, even though communities are theoretically free to adopt any kind of ordinance they may wish.

The enforcement of the milk grading system is likewise dependent upon public opinion. Violation of certain sanitary regulations in the production, processing, or distribution of milk results in its being given a Grade B. If it comes from cows not tested for abortion (Bang's disease which may take the form of undulant fever in humans), or if it has a higher bacterial count than is permitted for Grade A, it will be degraded. This means that it must be distributed under a Grade B label, e.g., Grade B pasteurized milk may not have "an average bacterial plate count after pasteurization and before delivery not exceeding 50,000 per cubic centimeter,"[218] where as Grade A pasteurized milk may not have more than 30,000 bacteria per cubic centimeter. "Grade C pasteurized milk is pasteurized milk which violates [*sic*] any of the requirements for Grade B pasteurized milk." It appears to be the rationale back of this system that if a

community becomes sufficiently aroused to get an ordinance through its city council providing for the system, it will adequately realize the significance of the labels to demand clean and pure milk whenever the labels begin to indicate it is dirty. The inspectors (the ordinance refers to the city health officer) are given power to stop the producer, processor, or distributor from supplying milk. An opportunity for a hearing must be given. The usual procedure is for the inspector to call attention to insanitary practices when he makes his inspection. If these conditions have not been satisfactorily remedied by the time of the next inspection, the possibility of degrading is raised if the hazard is not too great. If violations are serious or persisted in, the inspector simply notifies the offender that he is not entitled to continue supplying milk. This has been the end of the matter in the Charlestown area, because no one has insisted on continuing to supply milk. However, the ordinance does provide for additional penalties of a criminal nature, fines not to exceed $100 and jail sentence not to exceed 30 days or both.

When the effectiveness of the administration of the sanitary milk program is compared with that relating to restaurants, particularly in the Charlestown area, it is evident that the health authorities have hit upon a happy approach to the problem of sanitary milk. Whether the advantage in the milk program lies in the educational approach or whether the tone of the administration is changed by the different legal basis upon which it rests, is not entirely clear. No doubt other factors, such as the universal use of milk, have contributed to the effectiveness of the milk work, but whatever they may be, the conclusion is inescapable that the improvement in the purity and cleanliness of milk consumed in the Charlestown area has been greatly improved during the period under review here.

Communicable Diseases The potential danger of epidemics in the Charlestown area was grave. Persons had come from forty-seven states with a variety of disease backgrounds. The conditions of work, during the construction period, involving large numbers of workers operating out of doors in all kinds of weather, the living conditions which have been described earlier, and the lack of opportunity for the population to have developed any high resistance to some of these diseases, created a dangerous situation from the standpoint of communicable diseases.

The powers of the several agencies and officers in the state and local governments in Indiana have been described in an earlier section of this study. The discussion in the paragraphs that follow will be concerned with the exercise of these powers.

The function of the state board with regard to communicable diseases is set forth in the annual reports as: ". . . to maintain a system of collecting and recording morbidity reports from county, [and] city . . . health officers of the state, to make investigations of outbreaks of diseases, to cooperate with local health officials and local communities to control such outbreaks, and to use educational measures for the prevention of diseases by immunization."[219] This function includes:[220]

1. The collection and analysis of statistical data concerning the incidence of communicable disease throughout the State.
2. Emergency investigation of outbreaks for the purpose of learning the source of infection in order to block its progress.
3. Field investigation to determine the cause, incidence and the method of prevention of communicable diseases.
4. Provision of diagnostic consultation facilities.
5. Advisory service and assistance to local health departments in their communicable disease control program.
6. Preparation of pamphlets and releases of health articles for the information of the public.
7. Preparations of charts and graphs of infectious diseases for educational purposes.
8. Coordination of the activities of other bureaus in communicable disease control work.

The influence of the United States Public Health Service in the field of communicable diseases is indicated by the following statement:[221]

> Franked case and weekly morbidity cards are furnished by the United States Public Health Service to the bureau, who distributes them to the health officers, who in turn distributes them to the practicing physicians within his jurisdiction.

Another example of such influence is that the form for making reports to the state board by the district health department is that suggested by the Public Health Service. It happens that the Indiana State Board wishes certain information not called for on the Public Health Service form, but that information is made in a separate report.

The reporting in the Charlestown area is carried on by the local health officers. The district health department has carried on a separate program consisting of, (a) surveys, (b) immunization, and (c) educational work.

In March of 1941, a nursing survey was made of Charlestown. By sampling, an attempt was made to ascertain the disease experience of the people. Inquiries about the diseases that had been experienced in every fourth house were made by an interviewer, and

particular attention was paid to those cases which had resulted in deaths. This was done partly to check on the presence of disease carriers. Questions also were asked as to the number of persons who had been vaccinated and against what diseases. This was to determine immunization status, the higher the percentage of the population having been immunized the less the danger of an epidemic outbreak of such diseases as smallpox or diphtheria. The conclusion of the survey on typhoid fever, diphtheria and smallpox may be quoted. "The typhoid fever experience coupled with the low percentage (15.7%) of protection suggests the desirability of a program to secure this protection to this community." "Smallpox vaccination within the past six years of 36.5%, is inadequate community **Immunization** protection though this figure was about that anticipated." "The percentage immunization against diphtheria is better than average, [it was 35.6% under six years and 68% for those six to fifteen years] and this amount is said to be protection against a community epidemic." It may be added that the persons conducting this survey had some doubts as to the reliability of the data relating to immunization, particularly with respect to diphtheria. Subsequent checks, particularly one conducted in cooperation with the schools, indicated that a lower percentage of immunization prevailed.[221a]

An immunization program had been undertaken by the district health department during the year of July 1, 1940 to June 30, 1941, with the following results:

	1st quarter	2nd quarter	3rd quarter	4th quarter	Total
Smallpox	13	434	53	37	537
Typhoid fever				90	90
Diphtheria:					
Under 1 year		33		3	36
One to five	13	175	3	10	201
5 yrs. and over	2	403	50	32	487
					724

In addition to these persons vaccinated under district department direction, district representatives were able to persuade 128 other persons to go to their physicians for the purpose of conferring with them about, and presumably taking, immunization. The administration of the immunization program was a combination of education on the part of district health officials and cooperation by the local doctors who usually administered the shots for the price of twenty-five cents paid by the patient, with free serum from the state board

of health. After the close of the fiscal year 1940-1941, a special campaign for the immunization of persons against typhoid fever was carried on. By August 21, 1941, the following results had been achieved:

In Charlestown:

335	persons	had	each	received	3	injections
20	"	"	"	"	2	"
31	"	"	"	"	1	"

In the Charlestown community:

104	persons	had	each	received	3	injections
2	"	"	"	"	2	"
1	"	"	"	"	1	"

It may be significant to observe that in the district health department report there is no reference to quarantines. While this function by law and regulation belongs to the local health officers, the omission of comment about it is indicative of the trend in emphasis away from quarantine to immunization campaigns as a means of controlling communicable diseases. And while there was some private complaint among health workers that the county health officer was not sufficiently diligent in posting placards and notices, his action is in line with the general trend in the field of public health administration.

Education of Patients The educational activities of the public health authorities in the Charlestown area were carried on almost entirely by the district health officials. An example of this kind of work by the district health office in the field of communicable diseases is to be found in tuberculosis control. The entries in the accompanying table, when not self-explanatory, represent persons who as a result of the visits and instructions of district health doctors and nurses have taken the action indicated by the entry with regard to tuberculosis. There was close cooperation with regard to tuberculosis by the Army Examining Boards with the state board of health. All rejectees suspected of having the disease are reported to the state board which in turn sends the names to the local health officer and public health nurse.[222] This cooperation accounts in part for the success the district department reported in finding persons with the disease.

INDIANA STATE BOARD OF HEALTH

District Health Department, III

Annual Report for the Fiscal Year July 1, 1940 to June 30, 1941

	1st quarter	2nd quarter	3rd quarter	4th quarter	Total
Tuberculosis					
1. Individuals admitted to medical services	30	1	1		32
2. Individuals admitted to nursing service	48	32	38	51	169
3. Physical examinations in clinics	30	63		46	139
4. X-ray examinations		3		14	17
5. Clinic visits	30		31	32	93
6. Visits to private physicians	7			1	8
7. Field nursing visits	144	102	46	116	408
8. Office nursing visits	6	6	1	7	20
9. Admission to sanatoria	10	1		1	12
10. Other service (specify) Conf. with Phys. & Officials	38	29	11	13	91
11. Public lectures and talks		1	2	3	6
12. Attendance		16	56	17	89

Venereal Disease Venereal disease control had the same legal basis as that of other communicable diseases with two exceptions: (1) a statute requires that physicians and others attending pregnant women have them tested serologically for syphilis;[223] (2) there are a few rules of the state board made specifically with regard to reporting venereal disease to the state board, and a provision that "when it is possible and in the judgment of the state health commissioner it is advisable, the said reported person shall be quarantined and treatment given until such time as the patient may be no longer infectious."[224]

The potentialities for prostitution and therefore for venereal disease were thought to be very great in the Charlestown area.

The first step in the control of venereal disease according to the Public Health Service under the leadership of its present Surgeon-General is the repression of prostitution.[225] The state board seems to be in agreement with this position.

The authors gained the impression that there was rather close cooperation among the local and state police officers and the state board,[226] that quarantining of prostitutes would be resorted to if necessary—this seems to have happened in some instances in other defense areas[227]—but the necessity for this mode of suppression did not arise in Charlestown. The evidence seems to indicate that there was no great increase in prostitution, particularly on an organized and commercialized scale.

In accordance with the policy of the state board to establish local clinics in cooperation with local health officers, or in district health departments,[228] a clinic for the treatment of venereal disease in the Charlestown area was established in New Albany. This policy was made possible by the La Follette-Bulwinkle Bill passed in 1938, appropriating funds to the Public Health Service for distribution to the several states.[229] For the year 1940-41, Indiana received from the Service for venereal disease control $129,900.00.[230]

The operation of a venereal disease clinic is dependent for patients upon locating and persuading infected persons to visit it for treatment or if they can afford it, to go to private doctors. It appears that many infected persons will not visit the clinic on their own initiative. It is very frequently necessary for a nurse to visit them and to educate them to the potentialities of the disease and the treatment before they will submit to a serological test, in the first place and, secondly, treatment. It is particularly important that patients be encouraged to continue treatments until a cure is effected. This means that the nurse must pay repeated visits to those who fail to continue their treatments. There was close cooperation between the munitions plants, the Army Examining Boards, medical officers at Fort Knox, and the district health department. All new men coming to the plants or the Army Examining Boards from the Selective Service were required to take a serological test for syphilis. The names of those showing a positive reaction were referred to the district health department; and a nurse visited them, if possible, to persuade them to avail themselves of the services of the clinic, or to go to their own private doctor for treatment. In the latter case the drugs are, if desired, supplied by the state board; and although it seems that this free service is technically restricted to indigent or semi-indigent persons, the class of persons actually receiving such assistance is broader because the board and the attending physicians in many instances do not inquire too closely into the financial status of those who wish to avail themselves of the benefits of this service. Men returning to Fort Knox with an infection were interrogated as to the source of their infection; and if they revealed it, this information was also referred to the health authorities so that the infecting persons could be apprised of the clinic. A fourth source of information as to infected persons was the patients who came for treatment. Each patient was interviewed as to the source or sources of his or her infection. By this process many persons were located and treated.

It may be pointed out that this last source of information was very fruitful, partly, no doubt, because of the attitude of the district health department director in his approach to infected persons, assuming that they were ill rather than criminal. This attitude pervaded the entire staff of the office.

The clinic has had a large number of patients. For the year of July 1, 1940, to June 30, 1941, there were 2,388 visits to it for treatment. In the late summer of 1941, it was decided to detail one nurse to field work, i.e., locating infected persons and educating them to the benefits of taking treatments. When she began work, from forty to forty-five persons were attending the clinic each month. In the first two months after the adoption of this policy, the number of patients visiting the clinic for treatment was almost doubled, and since that time the number has remained practically constant. That this increase in the number of patients throws no light on the amount of recent infection is shown by the fact that approximately fifty per cent of the patients have old infections, i.e., of four years or longer.

Whether the clinic is reaching most of the infection in the community and what the total amount of it is in the area and whether or not there was an increase as a result of the influx of population will have to remain an unanswered question in this investigation. There is some basis for a rather persistant local impression that there was no disproportionate increase of diseases in this field during the period studied, but no reliable data are available thus far. The percentage of infection which was found as a result of tests of white persons applying for employment at the powder plant decreased slightly during the first year. The amount of infection among negroes was so high that it almost became impracticable to try to employ them, though it must be added that not all infected persons were denied employment for that reason. If the stage of the infection was not at a particularly contagious phase and if the employee would present a doctor's certificate showing that he was receiving treatment, he would not be excluded because of his disease.

Public Health Nursing Public health nursing has been one of the important factors in the maintenance of health standards in the Charlestown area. As a function, it was unlikely to get attention in proportion to the service it rendered because the activity of the nurse was, in many cases, largely concerned with other services which required treatment, such as communicable disease control, including immunization work, work in the field of venereal disease,

educational work connected with tuberculosis, maternal and child health. That there were more workers in the nursing field than there were in any other of the public health services is testimony to the importance of this activity. In accord with the proffered assistance of the federal government in Title V of the Social Security Act, the state legislature in 1936 authorized the state board of health to cooperate with the children's bureau of the United States Department of Labor, for the improvement of the health of mothers and children.[230a] The state board set up the administrative subdivision, the bureau of maternal and child health, to carry out this function in cooperation with other existing subdivisions such as the bureau of communicable diseases, and public health nursing. In the second place, an act of 1935, providing for the appointment by the county commissioners and city councils of full-time health personnel also empowered the commissioners to appoint "a full-time public health nurse," whose "qualifications shall be satisfactory to the state board of health," and the appointment of whom must receive the approval of the state board.[231] In addition to this statutory basis is the recommendation of the Conference of State and Territorial Health Officers, that states to be eligible for federal aid under Title VI of the Social Security Act should include in the local services full-time public health nurses.[232] The county commissioners of Clark County appropriated $620 to assist in paying a nurse who worked in Clark County under the supervision of the director of District Health Department No. 3; and for the year of 1941-42, they approximately doubled the appropriation.

At the beginning of the munitions boom there were three nurses in Clark County, but only one of these was a state board nurse; of the other two, one was in the employ of the Clark County Tuberculosis Association, and the other was an American Red Cross Nurse in Jeffersonville.[233] At one time during the rush period four nurses were added, two for general public health nursing, and two who were to specialize in maternal and infant care.

Functions A description of the work of the public health nurse in the area may be treated under two headings: (a) general service, (b) maternity and infant nursing. The nurses performing general services were concerned primarily with visiting, teaching and demonstrating. Bedside nursing was rarely done except in emergencies but was performed frequently for demonstration purposes. A complete description of the work of the general public health nurse is beyond the scope of this study, but the extent of this activity may be in-

dicated by reciting the titles in the nursing program for the year 1941-42, and listing the individual items under one of these. The titles are: pre-school hygiene, school, communicable disease control, public education, venereal disease, tuberculosis, and adult hygiene under which appear these separate items: "(1) home nursing classes (include not only young mothers but also older women who might be free to give assistance during illness), (2) mental hygiene and use of leisure time, (3) aim the teaching toward giving them the answers, (4) more health articles in newspapers, radio, and films, (5) distribution of reliable health literature, (6) encourage periodic medical examinations."

The maternity and infant nursing program, while including a great deal of teaching, such as, demonstration of infant baths, formula preparation, classes in prenatal care, nutrition, was more concerned with rendering direct nursing service. These functions were to locate expectant mothers, persuade them to have serological and urine tests made in early pregnancy, to consult their family physician, (in many cases to find one), and if it was to be a home delivery to assist in the preparation of the home and especially to be present to assist the doctor with the delivery of the baby. The maternity nurse would visit to aid in and supervise the care of the newborn infant until it was three or four weeks old, when the whole case would be shifted back to the general public health nurse.

This service is of particular importance in the area because it is reported that from about fifty to eighty per cent of all the babies in Clark County are born in the homes or in trailers. The powder plant gave office space to this service.

Industrial Disease The prevention of industrial diseases is an important public health function and a special subdivision, the bureau of industrial hygiene, was set up in the state board of health in 1939 to deal with this problem. Since November 1940, it has concerned itself almost entirely with the defense industries.[234] This work is of such a specialized nature that none of the personnel of District Health Department No. 3 engaged in it extensively, if at all. The United States Public Health Service, rather than the Bureau of Industrial Hygiene, has been authorized by the war department to study health problems in the munitions industries in the Charlestown area.

Health Education Throughout this study emphasis has been laid upon the reliance placed by the state board upon educational methods. But especial attention must be drawn to the function of

education as such, because, while it is carried on in connection with other functions, it is a function in itself. A subdivision of the state board, the Bureau of Health and Physical Education, is charged with the state-wide responsibility of disseminating information by publishing a magazine, the *Monthly Bulletin,* in special pamphlets, in addresses by radio, in moving pictures, with exhibits, and by consultation with all types of groups, both official and private.

Much of the material which it collected or prepared was available to the health officials in the Charlestown area and was used quite extensively by them. The annual report of the district health department contains numerous references to visits and conferences which were primarily for educational purposes. Two hundred and seventeen public lectures and talks were given to over six thousand persons during the year 1940-41. Of these, one hundred and ninety-nine were in the public schools, reaching six thousand school children. Six hundred and twelve women attended maternity classes. In addition to all this, the district department furnished material to, and cooperated with, the W.P.A. in its educational program. Many classes in home nursing, nutrition and the like having health significance were taught by the W.P.A. teachers. This kind of a program seems to be the only sure way to insure success in the long run, and the health administrators feel that in the Charlestown area the educational program has been of increasing significance.

* * *

The effectiveness of the public health services performed in Charlestown during the trying days of the defense boom is to be attributed to (1) the fact that the state board had previously established the district health departments in this area, and (2) the cooperation of national, state, and local health authorities in the region.

It seems quite certain that if the flood of 1937 had not caused the establishment of the district health departments the task of organizing and administering the public health services of the area would have been a very trying one, indeed. Similarly, it might have been very difficult to achieve the same results if the Social Security Act had not been enacted when it was enacted, coming as it did, just before the flood and the period of national defense.

When, however, all factors have been taken account of, there is one factor that must not be overlooked, and it is that for over two generations the state board had been engaged in a program of education in the field of public health. The coming of these two

emergencies furnished the occasions for crystalizing this program of education into a program of action and the resulting achievements in the Charlestown area were made possible. This illustrates the peculiar combination of a well-laid foundation and cooperative national-state-local action which seems to be the basic strength of American federated democracy.

FOOTNOTES

[1] James A. Tobey, *Public Health Law* (2nd ed.; New York: The Commonwealth Fund, 1939), pp. 76 f.
[2] C.-E. A. Winslow, "The Untilled Field of Public Health," *Mod. Med.*, 2:186, March, 1920; quoted in I. V. Hiscock, *Community Health Organization*, (3rd ed.; New York: The Commonwealth Fund, 1939), p. 15.
[3] Wilson G. Smillie, *Public Health Administration in the United States*, (New York: The Macmillan Company, 1935), pp. 3-10. Smillie admits the last point is not yet a *sine qua non* of a satisfactory health organization.
[4] Indiana Revised Statutes, 1838, ch. XXVI, secs. 36, 38, 41, at pp. 213 f., and p. 224.
[5] Acts of Indiana, 1881, ch. XXXVII, secs. 157-162, at pp. 208 f.; all Indiana Acts will hereafter be cited as Acts.
[6] Indiana Revised Statutes, 1881, secs. 3106, cls. 2, 4, 5, 6, 10; 3098; 3333, cl. 4.
[7] Acts, 1881, ch. XIX, pp. 37 ff.
[8] Acts, 1891, ch. 15, sec. 1; Burns Annotated Statutes of Indiana, 1933, Vol. VII, sec. 35-101; hereafter to be cited as Burns.
[9] Acts, 1933, ch. 4, sec. 17; Burns, 35-101, note.
[10] Tucker v. State, 35 N. E. (2nd), 270 (1941).
[10a] Acts, 1881, ch. 19, sec. 8.
[11] Acts, 1881, secs. 9, 13.
[12] Acts, 1881, sec. 5.
[13] Acts, 1881, sec. 10.
[14] Acts, 1881, sec. 11.
[15] Acts, 1881, sec. 7.
[16] Acts, 1881, sec. 9.
[17] *Yearbook of the State of Indiana,* 1940, pp. 791-932; hereafter cited as *Yearbook.*
[18] Burns, 35-301; Acts, 1905, ch. 38, sec. 1, p. 42.
[19] *Yearbook,* 1923, pp. 126-127.
[19a] *Yearbook,* 1937, p. 492.
[20] Acts, 1929, ch. 116, sec. 2, p. 340 at p. 353; Acts, 1941, ch. 231, sec. 2, p. 805 at p. 857.
[21] Acts, 1939, ch. 47, sec. 2, p. 199 at p. 267.
[22] Burns, 35-106; Acts, 1909, ch. 144, sec. 3, pp. 342-344.
[23] Burns, 35-201; Acts, 1909, ch. 24, sec. 1, p. 60.
[24] Burns, 35-211; Acts, 1913, ch. 35, sec. 1, p. 63.
[25] Burns, 35-118 ff; Acts, 1935, ch. 217, secs. 1-9. This act does not include Indianapolis, cities of 2nd, 3rd, 4th, and 5th classes each being mentioned, but not first class cities.
[26] Acts, 1935, secs. 1, 2.
[27] Burns, 35-126.
[28] Burns, 35-106.
[29] Weir v. State, 96 Ind. 311 (1884); Waller v. Wood, 101 Ind. 138 (1884); Board of Commissioners v. Bader, 20 Ind. App. 339 (1898); Hendershot v. State, 162 Ind. 69 (1903); Town of New Carlisle v. Tullar, 61 Ind. App. 230 (1915); Bancroft v. Chesterton, 86 Ind. App. 5 (1927); Frankfort v. Slipher, 88 Ind. App. 356 (1928); Board of Commissioners v. Fertich, 18 Ind. App. 1 (1897); State Ex Rel Horne v. Beil, 157 Ind. 25 (1901); Martin v. Board, 27 Ind. App. 98 (1901); Monroe v. Bluffton, 31 Ind. App. 269 (1903); Anable v. Board of Commissioners, 34 Ind. App. 72 (1904); Frank v. Irvin, 34 Ind. App. 280 (1904); Knightstown v. Homer, 36 Ind. App. 139 (1905); State v. Closser, 179 Ind. 230 (1912); Board v. Kime, 66 Ind. App. 620 (1918); Vonnegut v. Baun, 206 Ind. 172 (1934); Carr v. State, 111 Ind. 101 (1887); Lake Erie and Western R.R. Co. v. James, 10 Ind. App. 550 (1894); Blue v. Beach, 155 Ind. 121 (1900); Groff v. State, 171 Ind. 547 (1908); State Board of Health v. Orth, 84 Ind. App. 260 (1926); Weisenberger v. State, 202 Ind. 424 (1931).
[30] Opinions of the Attorney General of Indiana for the years given.
[31] Typhoid fever 1916-1917, *Yearbook,* 1917, p. 330; typhoid fever 1938-1939, *Yearbook,* 1940, p. 836.

Tuberculosis 1916-1917, *Yearbook,* 1917, pp. 326-28; tuberculosis 1938-1939, *Yearbook,* 1940, p. 835.

[32] *Yearbook,* 1922, p. 261.

[33] *Yearbook,* 1917, p. 300.

[34] *Yearbook,* 1918, pp. 374f.

[35] *Yearbook,* 1918, pp. 375 f.

[36] *Yearbook,* 1922, p. 258.

[37] *Yearbook,* 1925, p. 523; see also *Yearbook,* 1937, p. 492.

[38] *Yearbook,* 1917, p. 299; *Yearbook,* 1918, p. 374; *Yearbook,* 1919, p. 486.

[39] Acts, 1935, ch. 217, sec. 5.

[40] Social Security Act, approved August 14, 1935, Title VI, sec. 602, paragraph (c); U. S. C. A. ch. 7, sub-ch. 6 secs. 801-3, p. 3538, 1940 ed. The annual appropriation was increased to eleven million for the fiscal year ending June 30, 1940.

[41] *The Public Health Program,* under Title VI of the Social Security Act, Supplement No. 126, (United States Government Printing Office, Washington, 1937), pp. 2-3.

[42] *Ibid.,* p. 3.

[43] Acts, 1936, ch. 2, sec. 8.

[44] Acts, 1936, sec. 2, par. (c). The Public Health Service was transferred to the Social Security Agency from the Treasury as of July 1, 1939, *United States Government Manual,* March, 1941, p. 642.

[45] *Yearbook,* 1937, p. 492.

[46] H. L. Thomasson, "Grade A Milk," *Monthly Bulletin,* Indiana State Board of Health, Vol. XLIV, No. 8, August 1941, p. 200; hereafter cited as *Monthly Bulletin.*

[47] Burns Supplement, 1941, 35-118.

[48] Opinions of the Attorney General, 1934, p. 282; also see p. 153; Burns, 35-115.

[49] Burns Supplement, 1941, 35-124.

[50] Frank E. Horack, *Indiana Administrative Code,* 1941, Vol. I, rule 35-111-1; hereafter cited as Horack.

[50a] Burns, 35-111.

[51] Horack, 35-111-1.

[52] Horack, 35-111-3.

[53] Burns, 35-111. County health officers may appoint two kinds of deputies, registration and special health deputies, according to a rule of the state board of December, 1931 (Horack, 35-111-1). An opinion of the Attorney-General in 1938, which denies the power of the county health officer to employ deputies, (Op. of At. Gen. 1938, p. 175), seems of doubtful soundness. The Attorney-General based his opinion on the point that the act of 1935 carried a repealer for all conflicting provisions of previous acts and that it provided that "the salary and the actual necessary operating expenses of the county health officer" were to be paid out of the treasury of the country. He was of the opinion that the term "operating" expenses distinctly differed from those "expenses known as personal expenses and personal services" (p. 177). It is true that the references to deputies of the health officers appear in statutes enacted prior to the act of 1935, and if in conflict with that act were repealed by it, but it would seem that, in view of the broad rule-making power given to the state board of health and in view of its evident judgment that county health officers may need the assistance of deputies, the legislature may not have intended to override the state board of health and its own prior enactment to abolish the power of county health officers to appoint deputies by the left-handed implication as suggested by the Attorney-General.

[54] Horack, 35-111-1.

[55] Horack, 35-115-2.

[56] Horack, 35-115-3.

[57] Burns Supplement, 1941, 35-703.

[58] Burns, 35-408; Horack, 35-408-1.

[59] Horack, 35-403-1.

[60] Burns, 35-404; 35-410; Horack, 35-404-1; 35-405-2; 35-410-1; 35-410-2; 35-410-3.

[61] Burns, 35-408; Horack, 35-408-1. If the opinion of the Attorney-General, *supra*, n. 53 is correct that the 1935 act abolished all powers of the health officer to contract for any "personal services," then it would seem that the above provision permitting the employment of nurses and attendants has been repealed. It may be said in support of the Attorney-General's opinion that there has been a tendency to distribute county obligation for the care of indigents to the township, as will be noted later.

[62] Burns, 35-602.

[63] Burns, 35-604; Horack, 35-401-1, and particularly part C.

[63a] Horack, 35-115-5.

[64] Burns, 35-1009; also, full title of the acts of 1909, Acts, 1907-1909, p. 393.

[65] Burns, 35-1507.

[66] Burns, 35-1003.

[67] Horack, 35-1008-1.

[68] Burns, 35-1105.

[69] Burns, 35-904; also see 35-903.

[70] Burns, 35-1701.

[71] Burns, 35-1602.

[72] Burns Supplement, 1941, 35-127. This is an act of 1935.

[73] Opinions of the Attorney General, 1934, p. 33 at p. 35.

[74] Burns, 35-1802.

[75] Burns, 35-1801.

[75a] Burns, 52-144; C. F. Snider, *Township Government in Indiana* (Department of Government, Indiana University, 1932), pp. 15, 19. There is an exception to this general rule in that the township trustee has certain public health functions to perform incidental to his duties in connection with the schools, e.g., sending ill children home from school (Burns, 28-2902), submitting plans for remodeling and constructing school buildings to the state board of health (Burns, 28-2904), and levying taxes to enforce the sanitary school houses act (Burns, 28-2904). Also see Horack, 28-2901-1 to 28-2901-47 and 28-2902-1 to 28-2902-2. Another exception is the duty of the trustee to care for certain cemeteries, see *infra*, p. 22.

[76] Board of Commissioners v. Seaton, 90 Ind. 158 (1883); Washburn v. Board of Commissioners, 104 Ind. 321 (1885); Conner v. Board of Commissioners, 57 Ind. 15 (1877).

[77] Woodruff v. Board of Commissioners, 10 Ind. App. 179 (1894).

[78] Board of Commissioners v. Galloway, 17 Ind. App. 689 (1897).

[79] Board of Commissioners v. Osburn, 4 Ind. App. 590 (1892).

[80] Burns, 26-533.

[81] Burns Supplement, 1941, 52-148; 52-144.

[82] Burns Supplement, 1941, 52-149.

[83] Opinions of the Attorney General, 1934, 247; Whitlatch v. Carpenter, 107 Ind. App. 436 (1940).

[84] Opinions of the Attorney General, 1934, 247.

[85] Burns Supplement, 1941, 52-160.

[86] Newcommer v. Jefferson Township, Tipton Co., 181 Ind. 1 (1914).

[87] Whitlatch v. Carpenter, 107 Ind. App. 436 (1940).

[88] Morgan County v. Seaton, 122 Ind. 521 (1889).

[89] Sherfey & Kidd v. Board of Commissioners, 26 Ind. App. 66 (1901).

[90] Burns Supplement, 1941, 52-162.

[91] Burns, 21-701; Burns Supplement, 1941, 52-146.

[92] Burns, 35-703.

[93] Burns, 35-710.

[94] Burns, 28-2902.

[95] Burns, 28-2903. The state superintendent of public instruction and the state health officer are required by this act to prepare jointly material "setting forth as plainly as possible the primary principles of hygiene and sanitary science, and information concerning the prevention of diseases, and supply the same to all county superintendents, and said superintendents shall supply all the schools in their respective counties and see to it that teachers do not fail to comply with this section. . . ."

[96] Burns, 40-2108.

[97] Burns, 35-1228.

[98] Burns Supplement, 1941, 35-1235.
[99] Burns, 35-115.
[100] Burns, 63-1302.
[101] Burns, 35-411; Burns Supplement, 1941, 35-118.
[102] Opinions of the Attorney General, 1934, p. 153.
[103] Burns, 25-1521; 21-210. The relation of the county commissioners to the county health officer has been dealt with *supra*, pp. 16 f.
[104] Spitler v. Town of Munster, 214 Ind. 75 (1938).
[105] Burns, 35-401; 35-115; 35-601.
[106] Horack, 35-401-1.
[107] Horack, 35-401-1.
[108] Burns, 35-502.
[109] Burns, 35-601.
[110] Horack, 35-401-2.
[111] Burns, 35-115; 35-901; Burns Supplement, 1941, 35-805; Horack, 35-115-2; 35-115-3.
[112] Burns Supplement, 1941, 35-805.
[113] Particularly Burns, 63-1301 to 63-1316 and Horack, 63-1302-1 ff.
[114] This is not required of women who select and depend upon spiritual means or prayer for the treatment or cure of disease; Burns Supplement, 1941, 35-806.
[115] Burns Supplement, 1941, 35-804.
[116] Burns, 35-902.
[117] Burns, 35-115; 35-402; 35-405; 35-604; Burns Supplement, 1941, 35-804.
[118] Burns, 35-604; 35-605.
[119] Burns, 35-1103.
[120] Burns Supplement, 1941, 35-120.
[121] Ordinance passed April 4, 1910, sec. 3.
[122] *Ibid.*, sec. 5. No one but the health officer might remove or order the placard removed; no one might come from or go into the quarantined place except on permission of the health officer.
[123] Ordinance of April 4, 1910, sec. 3.
[124] Ordinance of May 12, 1941, No. 56, sec. 2.
[125] Ordinance of March 10, 1941, No. 54.
[126] Ordinance of April 4, 1910, sec. 5.
[127] Ordinance of March 25, 1941, No. 55, sec. 3.
[128] *Ibid.*, sec. 5.
[129] Ordinance of March 10, 1941, No. 54. It is probable that the term "Board of Health" in the ordinance is a typographical error. In the next section of the ordinance there is a reference to the Board of Trustees and the draft from which the board modeled the ordinance contained no reference to a board of health.
[130] Ordinance of April 4, 1910, sec. 2.
[131] Ordinance of October 7, 1907, sec. 1.
[132] Ordinance of April 4, 1910, sec. 2.
[133] Ordinance of June 4, 1917, secs. 1, 2.
[134] Acts, 1941, p. 586.
[135] *Correspondence* between the Chief Engineer, Bureau of Sanitary Engineering, Indiana State Board of Health and Chemical Engineer, Industrial Engineering Division, E. I. du Pont de Nemours Co., July 24, 1940; hereafter cited as *Correspondence*.
[136] Burns, 35-201.
[137] *Correspondence*, July 31, 1940.
[138] Burns, 10-2506.
[139] Burns, 10-2508.
[140] Burns, 10-2509. For the rule of the state board of health against stream pollution, see, Horack, 35-201-1 to 35-201-6.
[141] Burns Supplement, 1941, 68-515.
[142] Burns Supplement, 1941, 68-513.
[143] Burns Supplement, 1941, 68-501.
[144] Burns, 68-506. For the rules for determining stream pollution see, Horack, 68-504-1.
[145] Burns, 60-101; 60-102; 60-117.

[146] Burns, 60-109.

[147] Burns (compiler's note after 35-101). The proclamation assigning the state board was dated April 13, 1933.

[148] Acts, 1941, ch. 13, sec. 2, p. 31; Burns Supplement, 1941, 60-135; Acts, 1941, ch. 4, sec. 1, p. 8.

[149] Tucker v. State, 35 N.E. (2nd) 270 (1941). According to the *Roster* of State and Local Officers and Officials of the State of Indiana, 1941, (2nd ed.) pp. 3-7, there is now no Department of Commerce and Industry, and the board of health is a non-departmental board. Though one act which repealed the act of 1933 was declared unconstitutional, the legislature enacted a separate repealer, (Acts, 1941, ch. 4, sec. 1, p. 8).

[150] Since the powder plant discharged its wastes and sewage into a drainage stream and not directly into the Ohio River, the point as to Indiana's jurisdiction over the river does not arise. According to the Ordinance of 1787 and the Indiana Constitution (Art. 14, sec. 1), the Ohio River is a part of Kentucky, Indiana territory reaching to the edge of the river at low-water mark, (Indiana v. Kentucky, 139 U. S. 479 [1890]). For a statement that Indiana has no jurisdiction for purposes of correction of pollution over the river, see, *Yearbook,* 1940, p. 381; *contra,* P. S. Sikes, *Indiana State and Local Government,* (Principia Press, Inc., Bloomington, Indiana, [1940]), pp. 22 f. It would seem, however, that since Art. 14, sec. 2 of the Indiana Constitution provides that Indiana "shall have concurrent jurisdiction, in civil and criminal cases with the State of Kentucky on the Ohio River," and that the United States Supreme Court has upheld this jurisdiction (Wedding v. Meyler, 192 U. S. 573 [1904]) that there is little doubt as to the constitutional power of the state to control pollution. See, 1 Burns, 112 under Art. 14, sec. 2 and cases cited there; also Burns, 9-206, in which statutory jurisdiction over such matters is conferred on circuit courts in counties bordering the Ohio River.

[151] *Correspondence,* August 14, 1940.

[152] Acts, 1939, ch. 35, sec. 1, p. 122, approved March 4. The dates of the ratification of the other states are: West Virginia, March 11, 1939; Ohio, May 29, 1939; New York, June 8, 1939; Illinois, July 22, 1939; and Kentucky, March 16, 1940, (*Yearbook,* 1940, pp. 380 f.). Article XI of the compact provides that it will become effective when ratified by a "majority of the states located within the district and upon the approval by the Congress . . . and shall become effective as to any additional states signing thereafter at the time of such signing." The ratifications of West Virginia and Ohio were contingent upon ratification of other states, for example both included Pennsylvania in their reservation, (*Yearbook,* 1940, pp. 380 f.).

[152a] Paragraph two and three, Art. VI, Ohio River Valley Water Sanitation Compact; Burns Supplement, 1941, 68-601; Acts, 1939, ch. 35, sec. 1, p. 122 at pp. 125 f; also, *Correspondence,* July 24, 1940; Memorandum Relative to Disposal of Sewage, prepared by Senior Sanitary Engineer, United States Public Health Service, July 22, 1940; Factors Involved in Stream Pollution (3rd ed.) 1935, Bulletin No. 5, Bureau of Sanitary Engineering, Indiana State Board of Health.

[153] Burns, 35-201.

[154] Burns, 35-106. Some of the others are: 35-203; 35-208; 10-2508; 10-2509; 35-1802; and possibly the 1935 stream pollution act (Burns Supplement, 1941, 68-501 ff) if the powers in this act devolved onto the state board of health when the Department of Commerce and Industry was abolished.

[155] Engineering Bulletin No. 10, Rules of the Indiana State Board of Health, Department of Sanitary Engineering, November 1931, p. 84; Rule SE 12; Horack, 35-201-2; 35-201-5.

[156] Martin A. Milling, *Sewage Gas,* State Board of Health, Bureau of Sanitary Engineering, December, 1941.

[157] B. A. Poole, "Problems in the Field of Environmental Sanitation as a Result of the War," *Health Reports* Presented at Meeting of Governor's Advisory Health Council, Wednesday, March 18, 1942, James Whitcomb Riley Hospital, Indianapolis, Indiana; (mimeographed), pp. 17-20.

[158] See *supra,* note 156.

158a Burns, 35-106.
158b Burns, 35-211.
158c For example, Burns, 10-2506 to 10-2510; 35-1801, 35-1802; also, Burns Supplement, 1941, 68-501 to 68-516, particularly 68-507. As to the question of the status of the powers under this act see *supra*, pp. 33 f.
159 Engineering Bulletin No. 10, Rules of the Indiana State Board of Health, Department of Sanitary Engineering, November 1931, p. 77.
160 *Ibid.*, also, *Yearbook*, 1935, p. 645.
161 Engineering Bulletin No. 10, *op. cit.*, pp. 78-79; Horack, 35-211-3.
162 Burns, 35-214.
163 Horack, 35-214-1, par. D, cl. 4.
163a Horack, 35-211-4.
164 *Yearbook*, 1941, p. 552.
165 For figures for 1933-34 to 1935-36, see *Yearbook*, 1938, p. 736; and for 1936-39 to 1940-41, see *Yearbook*, 1941, p. 553.
166 See *Roster*, 1942 (2nd ed.) p. 9, for the names of the members of the Administrative Building Council.
167 Burns, 20-401.
168 Burns, 20-407.
169 Opinions of the Attorney General, 1934, p. 94 at pp. 95 f.
170 See compiler's notes in Horack, under 20-404; Administrative Building Council of Indiana, Plumbing Rules and Regulations, Indianapolis, Indiana, 1932; also see *Yearbook*, 1941, p. 535.
171 Opinions of the Attorney General, 1934, p. 94 at p. 97.
172 Report of Survey of Charlestown, Indiana Area by the Indiana State Board of Health, p. 7.
173 Burns Supplement, 1941, 20-404; Horack, 35-201-5, cl. 6; also 35-201-6, cl. 3.
174 Burns, 35-1801; 35-1802.
175 Burns, 35-1803.
176 *Yearbook*, 1937, p. 475.
177 *Yearbook*, 1941, p. 570.
178 *Monthly Bulletin*, Indiana State Board of Health, Vol. XLIV, No. 2, February 1942, p. 41.
179 *Yearbook*, 1940, pp. 925 f.
180 *Yearbook*, 1941, p. 566.
181 *Yearbook*, 1938, pp. 727, 729.
182 Charlestown Ordinance No. 9, September 7, 1936.
182a R. St. J. MacDonald, "Plumbing-Borne Diseases," *Canadian Public Health Journal*, April 1939.
183 For a detailed discussion of this problem see *Ibid.*, also for instances when faulty plumbing has resulted in epidemics see: C.-E. A. Winslow, *Health on the Farm and Village*, p. 64; "Epidemic Amoebic Dysentery, Chicago Outbreak," *National Institute of Health Bulletin*, No. 166, United States Public Health Service; A. R. Foley, "A Hospital Epidemic of Paratyphoid A," *Canadian Public Health Journal*, 1936, 27:313.
184 Horack, 35-211-4, cls. 1 and 2.
185 Ordinance No. 38, April 27, 1939.
186 Ordinance No. 39, May 29, 1939.
187 Ordinance No. 55, March 25, 1941; secs. 3 and 6.
188 *Yearbook*, 1941, p. 433.
189 Burns Supplement, 1941, 35-2201.
190 Burns Supplement, 1941, 35-2210.
191 Horack, 35-2205-2.
192 This rule may be had in mimeographed form from the State Board of Health of Indiana or it may be found in Horack, 35-2205-1.
193 *Yearbook*, 1940, p. 920.
194 Burns, 35-111, par. 2.
195 Burns, 35-106.
196 Italics by the authors.
197 Acts, 1909, ch. 163, pp. 393 ff; Burns, 35-1001 ff. Other acts concerning the manufacture or preparation of food or regulation of its sale, or regulating the establishments in which it is stored are: Uniform Indiana

Food, Drug, and Cosmetic Act of 1939, which is modeled after the Federal Food, Drug, and Cosmetic Act, Burns Supplement, 1941, 35-1228 ff.

198 Burns, 35-1001.

198a Burns, 35-1009. The food and drug commissioner is probably now the secretary to the state board of health or his agent who is the inspecting and enforcing officer under the Uniform Indiana Food, Drug and Cosmetic Act of 1939, (Burns Supplement, 1941, 35-1230, par. d, also, *Yearbook,* 1941, pp. 574-583.

199 Horack, 35-1001; there are about thirty pages devoted to reprinting state board of health rules which effect the rights of private individuals, pp. 2510 to 2540.

200 Horack, 35-1001-61.

201 Horack, 35-1001-54, pars. 29-30.

202 George M. Brother, "Health Programs in the Defense Areas of Indiana," *Health Reports,* p. 13. These reports are to be reproduced in the *Monthly Bulletin,* beginning with Vol. XLV, No. 4, April 1942.

202a *Ordinance and Code Regulating Eating and Drinking Establishments,* June 1940 ed., (U. S. Public Health Service, Washington, D. C.).

203 Burns, 15-1701.

204 Burns, 35-1001 to 35-1010.

205 Burns, 35-1501 to 1508.

206 Burns, 35-1323; Horack, 35-1001-66; 35-1001-70.

207 Burns, 69-111.

208 Burns, 35-1302 and 35-1312.

209 Burns Supplement, 1941, 35-1328.

210 Burns, 35-1317.

211 Burns, 35-1301 ff; Burns Supplement, 1941, 35-1313.

212 Burns Supplement, 1941, 35-1228 to 35-1260.

213 Burns Supplement, 1941, 15-1701 ff.

214 Horack, 15-1705-801 to 15-1705-830.

215 Leslie C. Frank, "The Coordination of American Milk Control," paper read before joint session of the Public Health Engineering Section of the American Public Health Association, the Association of Dairy, Food and Drug Officials, and the International Association of Dairy and Milk Inspectors, at Milwaukee, Wisconsin, October 7-10, 1935, (mimeographed) by Indiana State Board of Health; also, Public Health Bulletin, No. 220, (1939 ed.), Milk Ordinance and Code, Federal Security Agency United States Public Health Service, p. vii.

216 H. L. Thomasson, "Grade A Milk," *Monthly Bulletin,* Vol. XLIV, No. 8, August, 1941, p. 200.

217 *Yearbook,* 1941, p. 571.

218 *Public Health Bulletin,* No. 220, Milk Ordinance and Code, (1939 ed.), p. 140.

219 *Yearbook,* 1935, p. 597; in the reports following until 1941, the collection of statistics alone was mentioned as "one of the chief functions," *Yearbook,* 1939, p. 547; see also, *Yearbooks,* 1936, p. 609; 1937, p. 495; 1938, p. 640; 1940, p. 803.

220 *Yearbook,* 1941, p. 436.

221 *Yearbook,* 1940, p. 803.

221a George M. Brother, "The Status of Diphtheria and Smallpox Immunization in Indiana," *Monthly Bulletin,* Vol. XLV, No. 4, April 1942, pp. 86-87.

222 George M. Brother, "Health Programs in the Defense Areas of Indiana," *Health Reports,* p. 14. These reports are to be reproduced in the *Monthly Bulletin,* beginning with Vol. XLV, No. 4, April 1942.

223 Burns Supplement, 1941, 35-804 to 35-806.

224 Horack, 35-401-2, par. 2.

225 Harvey J. Locke, *Social Aspects of Syphilis,* Indiana State Board of Health, 1938, pp. 29-30.

226 *Yearbook,* 1941, p. 474.

227 *Indianapolis Times,* February 23, 1942.

228 *Yearbook,* 1940, p. 857.

[229] United States Code Annotated, Title 42, sec. 25a, Cumulative Annual Pocket Part, 1941; also see, *Yearbook,* 1939, p. 611.
[230] *Yearbook,* 1941, p. 431.
[230a] Burns Supplement, 1941, 52-1601 ff.
[231] Burns Supplement, 1941, 35-123; 35-118; 35-119; Horack, 35-123-1.
[232] *The Public Health Program,* under Title VI of the Social Security Act, supplement No. 126, Washington, Government Printing Office, 1937, p. 3.
[233] Robert E. Jewett, "Public Health Service in the Clark County Defense Area," *Monthly Bulletin,* Vol. XLIV, No. 2, February 1942.
[234] Louis W. Spolyar, "Industrial Health in a Wartime Program," *Health Reports,* p. 22.